



wwPDB X-ray Structure Validation Summary Report ⓘ

Aug 13, 2026 – 08:47 PM JST

PDB ID : 9WTA / pdb_00009wta
Title : Crystal structure of a selenite-soaked multiheme cytochrome c selenoprotein (MccSep)
Authors : Mihara, H.; Yoshizawa, T.; Izu, Y.; Inoue, M.; Aono, R.; Zhang, W.; Shibamoto, N.; Tobe, R.; Kurihara, T.; Matsumura, H.
Deposited on : 2025-09-16
Resolution : 2.20 Å(reported)

This is a wwPDB X-ray Structure Validation Summary Report for a publicly released PDB entry.

We welcome your comments at validation@mail.wwpdb.org

A user guide is available at

<https://www.wwpdb.org/validation/2017/XrayValidationReportHelp>

with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at

<http://www.wwpdb.org/validation/2017/FAQs#types>.

The following versions of software and data (see [references ⓘ](#)) were used in the production of this report:

MolProbity	:	4-5-2 with Phenix2.0
Mogul	:	1.8.5 (274361), CSD as541be (2020)
Xtriage (Phenix)	:	2.0
EDS	:	3.0
Buster-report	:	wwPDB partial adaption of 1.1.7 (2018)
Percentile statistics	:	20250101.v01 (using entries in the PDB archive January 1st 2025)
CCP4	:	9.0.015 (Gargrove)
Density-Fitness	:	1.0.12
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.50

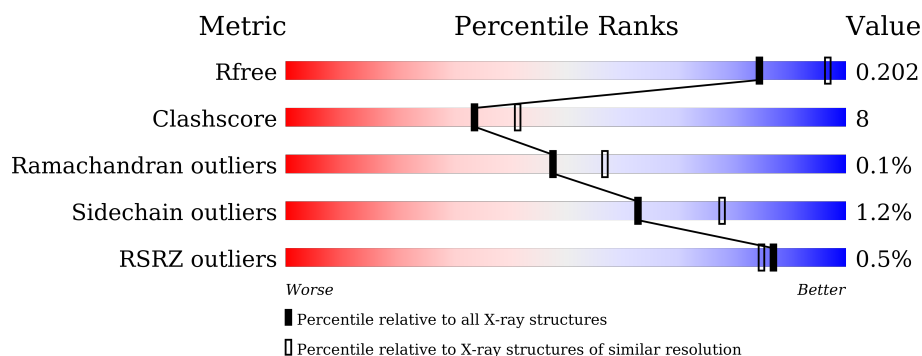
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 2.20 Å.

Percentile scores (ranging between 0-100) for global validation metrics of the entry are shown in the following graphic. The table shows the number of entries on which the scores are based.



Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
R_{free}	180053	6164 (2.20-2.20)
Clashscore	190562	6851 (2.20-2.20)
Ramachandran outliers	187476	6768 (2.20-2.20)
Sidechain outliers	187428	6769 (2.20-2.20)
RSRZ outliers	180081	6166 (2.20-2.20)

The table below summarises the geometric issues observed across the polymeric chains and their fit to the electron density. The red, orange, yellow and green segments of the lower bar indicate the fraction of residues that contain outliers for ≥ 3 , 2, 1 and 0 types of geometric quality criteria respectively. A grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions $\leq 5\%$. The upper red bar (where present) indicates the fraction of residues that have poor fit to the electron density. The numeric value is given above the bar.

Mol	Chain	Length	Quality of chain
1	A	450	
1	B	450	
1	C	450	
1	D	450	

The following table lists non-polymeric compounds, carbohydrate monomers and non-standard residues in protein, DNA, RNA chains that are outliers for geometric or electron-density-fit criteria:

Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
2	HEC	A	501	X	-	-	-
2	HEC	A	502	X	-	-	-
2	HEC	A	503	X	-	-	-
2	HEC	A	504	X	-	-	-
2	HEC	B	502	X	-	-	-
2	HEC	B	504	X	-	-	-
2	HEC	B	505	X	-	-	-
2	HEC	C	502	X	-	-	-
2	HEC	C	503	X	-	-	-
2	HEC	C	504	X	-	-	-
2	HEC	C	505	X	-	-	-
2	HEC	D	502	X	-	-	-
2	HEC	D	503	X	-	-	-
2	HEC	D	504	X	-	-	-
2	HEC	D	505	X	-	-	-
5	EDO	A	520	-	-	X	-
5	EDO	B	520	-	-	X	-
5	EDO	B	521	-	-	X	-

2 Entry composition

There are 7 unique types of molecules in this entry. The entry contains 15615 atoms, of which 0 are hydrogens and 0 are deuteriums.

In the tables below, the ZeroOcc column contains the number of atoms modelled with zero occupancy, the AltConf column contains the number of residues with at least one atom in alternate conformation and the Trace column contains the number of residues modelled with at most 2 atoms.

- Molecule 1 is a protein called Cytochrome c, Multiheme cytochrome c selenoprotein (MccSep).

Mol	Chain	Residues	Atoms						ZeroOcc	AltConf	Trace
1	A	422	Total	C	N	O	S	Se	0	20	0
			3385	2124	584	645	30	2			
1	B	422	Total	C	N	O	S	Se	0	18	0
			3376	2122	581	641	30	2			
1	C	422	Total	C	N	O	S	Se	0	15	0
			3370	2113	582	643	30	2			
1	D	422	Total	C	N	O	S	Se	0	13	0
			3346	2098	577	639	30	2			

There are 112 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	325	SEC	-	linker	UNP Q748R4
A	326	PRO	-	linker	UNP Q748R4
A	327	THR	-	linker	UNP Q748R4
A	328	PRO	-	linker	UNP Q748R4
A	329	ASN	-	linker	UNP Q748R4
A	330	ARG	-	linker	UNP Q748R4
A	331	LEU	-	linker	UNP Q748R4
A	332	VAL	-	linker	UNP Q748R4
A	333	LEU	-	linker	UNP Q748R4
A	334	SER	-	linker	UNP Q748R4
A	335	VAL	-	linker	UNP Q748R4
A	336	ILE	-	linker	UNP Q748R4
A	337	ALA	-	linker	UNP Q748R4
A	338	LYS	-	linker	UNP Q748R4
A	339	THR	-	linker	UNP Q748R4
A	340	LYS	-	linker	UNP Q748R4
A	341	ASP	-	linker	UNP Q748R4
A	342	GLY	-	linker	UNP Q748R4
A	343	GLU	-	linker	UNP Q748R4
A	344	GLU	-	linker	UNP Q748R4
A	345	VAL	-	linker	UNP Q748R4

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Chain	Residue	Modelled	Actual	Comment	Reference
A	346	PHE	-	linker	UNP Q748R4
A	347	ASN	-	linker	UNP Q748R4
A	348	GLN	-	linker	UNP Q748R4
A	349	GLU	-	linker	UNP Q748R4
A	350	LYS	-	linker	UNP Q748R4
A	351	ILE	-	linker	UNP Q748R4
A	352	TYR	-	linker	UNP Q748R4
B	325	SEC	-	linker	UNP Q748R4
B	326	PRO	-	linker	UNP Q748R4
B	327	THR	-	linker	UNP Q748R4
B	328	PRO	-	linker	UNP Q748R4
B	329	ASN	-	linker	UNP Q748R4
B	330	ARG	-	linker	UNP Q748R4
B	331	LEU	-	linker	UNP Q748R4
B	332	VAL	-	linker	UNP Q748R4
B	333	LEU	-	linker	UNP Q748R4
B	334	SER	-	linker	UNP Q748R4
B	335	VAL	-	linker	UNP Q748R4
B	336	ILE	-	linker	UNP Q748R4
B	337	ALA	-	linker	UNP Q748R4
B	338	LYS	-	linker	UNP Q748R4
B	339	THR	-	linker	UNP Q748R4
B	340	LYS	-	linker	UNP Q748R4
B	341	ASP	-	linker	UNP Q748R4
B	342	GLY	-	linker	UNP Q748R4
B	343	GLU	-	linker	UNP Q748R4
B	344	GLU	-	linker	UNP Q748R4
B	345	VAL	-	linker	UNP Q748R4
B	346	PHE	-	linker	UNP Q748R4
B	347	ASN	-	linker	UNP Q748R4
B	348	GLN	-	linker	UNP Q748R4
B	349	GLU	-	linker	UNP Q748R4
B	350	LYS	-	linker	UNP Q748R4
B	351	ILE	-	linker	UNP Q748R4
B	352	TYR	-	linker	UNP Q748R4
C	325	SEC	-	linker	UNP Q748R4
C	326	PRO	-	linker	UNP Q748R4
C	327	THR	-	linker	UNP Q748R4
C	328	PRO	-	linker	UNP Q748R4
C	329	ASN	-	linker	UNP Q748R4
C	330	ARG	-	linker	UNP Q748R4
C	331	LEU	-	linker	UNP Q748R4

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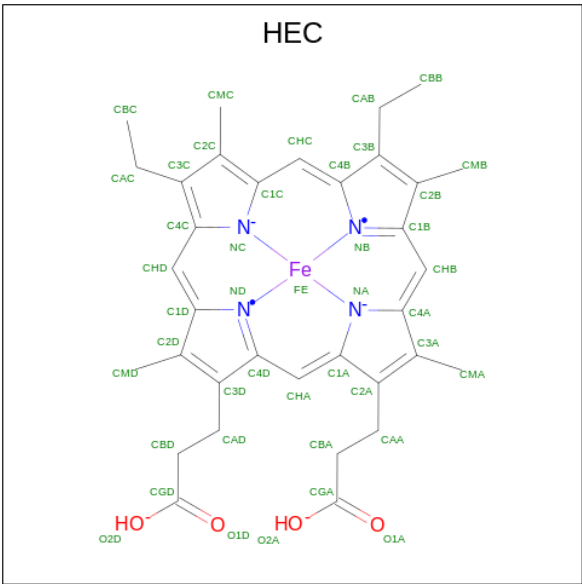
Chain	Residue	Modelled	Actual	Comment	Reference
C	332	VAL	-	linker	UNP Q748R4
C	333	LEU	-	linker	UNP Q748R4
C	334	SER	-	linker	UNP Q748R4
C	335	VAL	-	linker	UNP Q748R4
C	336	ILE	-	linker	UNP Q748R4
C	337	ALA	-	linker	UNP Q748R4
C	338	LYS	-	linker	UNP Q748R4
C	339	THR	-	linker	UNP Q748R4
C	340	LYS	-	linker	UNP Q748R4
C	341	ASP	-	linker	UNP Q748R4
C	342	GLY	-	linker	UNP Q748R4
C	343	GLU	-	linker	UNP Q748R4
C	344	GLU	-	linker	UNP Q748R4
C	345	VAL	-	linker	UNP Q748R4
C	346	PHE	-	linker	UNP Q748R4
C	347	ASN	-	linker	UNP Q748R4
C	348	GLN	-	linker	UNP Q748R4
C	349	GLU	-	linker	UNP Q748R4
C	350	LYS	-	linker	UNP Q748R4
C	351	ILE	-	linker	UNP Q748R4
C	352	TYR	-	linker	UNP Q748R4
D	325	SEC	-	linker	UNP Q748R4
D	326	PRO	-	linker	UNP Q748R4
D	327	THR	-	linker	UNP Q748R4
D	328	PRO	-	linker	UNP Q748R4
D	329	ASN	-	linker	UNP Q748R4
D	330	ARG	-	linker	UNP Q748R4
D	331	LEU	-	linker	UNP Q748R4
D	332	VAL	-	linker	UNP Q748R4
D	333	LEU	-	linker	UNP Q748R4
D	334	SER	-	linker	UNP Q748R4
D	335	VAL	-	linker	UNP Q748R4
D	336	ILE	-	linker	UNP Q748R4
D	337	ALA	-	linker	UNP Q748R4
D	338	LYS	-	linker	UNP Q748R4
D	339	THR	-	linker	UNP Q748R4
D	340	LYS	-	linker	UNP Q748R4
D	341	ASP	-	linker	UNP Q748R4
D	342	GLY	-	linker	UNP Q748R4
D	343	GLU	-	linker	UNP Q748R4
D	344	GLU	-	linker	UNP Q748R4
D	345	VAL	-	linker	UNP Q748R4

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Chain	Residue	Modelled	Actual	Comment	Reference
D	346	PHE	-	linker	UNP Q748R4
D	347	ASN	-	linker	UNP Q748R4
D	348	GLN	-	linker	UNP Q748R4
D	349	GLU	-	linker	UNP Q748R4
D	350	LYS	-	linker	UNP Q748R4
D	351	ILE	-	linker	UNP Q748R4
D	352	TYR	-	linker	UNP Q748R4

- Molecule 2 is HEME C (CCD ID: HEC) (formula: C₃₄H₃₆FeN₄O₄) (labeled as "Ligand of Interest" by depositor).



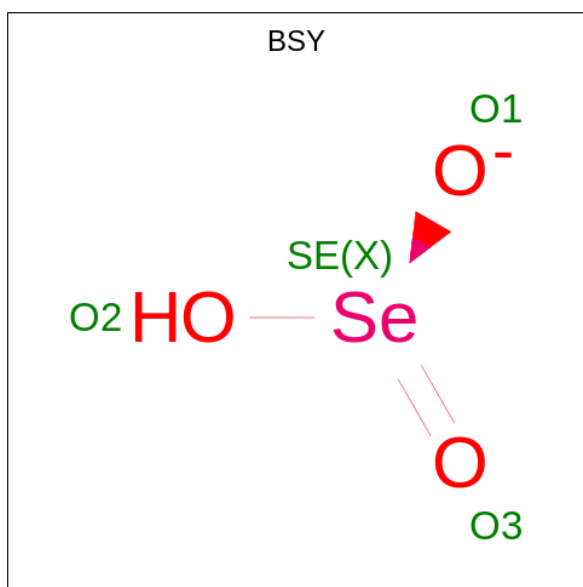
Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
2	A	1	Total 43	C 34	Fe 1	N 4	O 4	0	0
2	A	1	Total 43	C 34	Fe 1	N 4	O 4	0	0
2	A	1	Total 43	C 34	Fe 1	N 4	O 4	0	0
2	A	1	Total 43	C 34	Fe 1	N 4	O 4	0	0
2	A	1	Total 43	C 34	Fe 1	N 4	O 4	0	0
2	B	1	Total 43	C 34	Fe 1	N 4	O 4	0	0
2	B	1	Total 43	C 34	Fe 1	N 4	O 4	0	0

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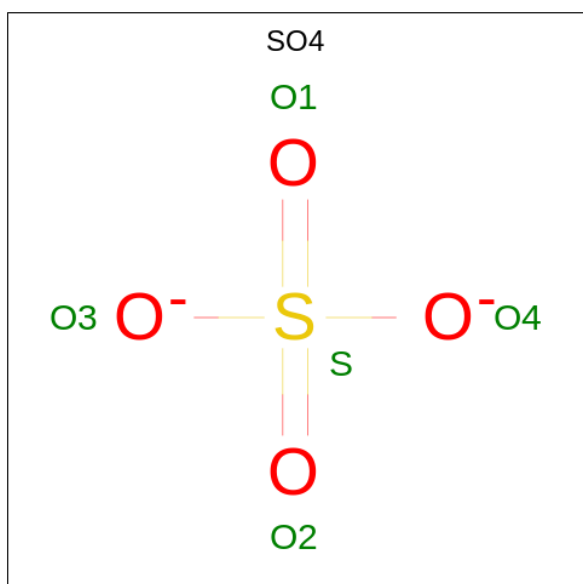
Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
2	B	1	Total 43	C 34	Fe 1	N 4	O 4	0	0
2	B	1	Total 43	C 34	Fe 1	N 4	O 4	0	0
2	B	1	Total 43	C 34	Fe 1	N 4	O 4	0	0
2	C	1	Total 43	C 34	Fe 1	N 4	O 4	0	0
2	C	1	Total 43	C 34	Fe 1	N 4	O 4	0	0
2	C	1	Total 43	C 34	Fe 1	N 4	O 4	0	0
2	C	1	Total 43	C 34	Fe 1	N 4	O 4	0	0
2	C	1	Total 43	C 34	Fe 1	N 4	O 4	0	0
2	D	1	Total 43	C 34	Fe 1	N 4	O 4	0	0
2	D	1	Total 43	C 34	Fe 1	N 4	O 4	0	0
2	D	1	Total 43	C 34	Fe 1	N 4	O 4	0	0
2	D	1	Total 43	C 34	Fe 1	N 4	O 4	0	0
2	D	1	Total 43	C 34	Fe 1	N 4	O 4	0	0

- Molecule 3 is BISELENITE ION (CCD ID: BSY) (formula: HO₃Se) (labeled as "Ligand of Interest" by depositor).



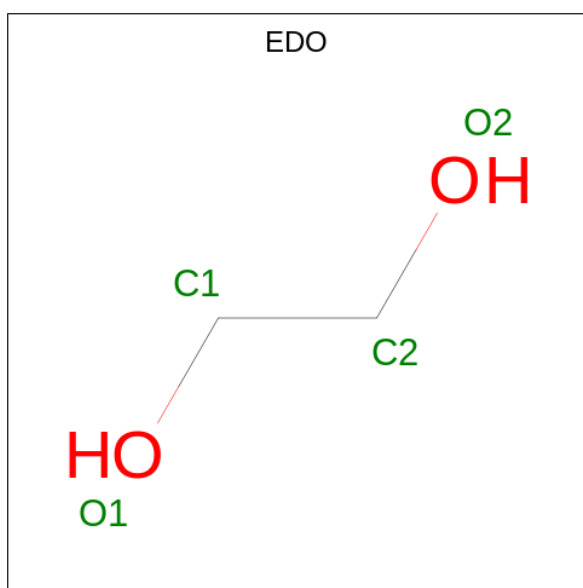
Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
3	A	1	Total	O	Se	0	0
			4	3	1		
3	B	1	Total	O	Se	0	0
			4	3	1		
3	C	1	Total	O	Se	0	0
			4	3	1		
3	D	1	Total	O	Se	0	0
			4	3	1		

- Molecule 4 is SULFATE ION (CCD ID: SO4) (formula: O₄S) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
4	A	1	Total O S 5 4 1	0	0
4	A	1	Total O S 5 4 1	0	0
4	B	1	Total O S 5 4 1	0	0
4	C	1	Total O S 5 4 1	0	0
4	D	1	Total O S 5 4 1	0	0

- Molecule 5 is 1,2-ETHANEDIOL (CCD ID: EDO) (formula: C₂H₆O₂) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
5	A	1	Total C O 4 2 2	0	0
5	A	1	Total C O 4 2 2	0	0
5	A	1	Total C O 4 2 2	0	0
5	A	1	Total C O 4 2 2	0	0
5	A	1	Total C O 4 2 2	0	0
5	A	1	Total C O 4 2 2	0	0

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Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
5	A	1	Total	C	O	0	0
			4	2	2		
5	A	1	Total	C	O	0	0
			4	2	2		
5	A	1	Total	C	O	0	0
			4	2	2		
5	A	1	Total	C	O	0	0
			4	2	2		
5	A	1	Total	C	O	0	0
			4	2	2		
5	A	1	Total	C	O	0	0
			4	2	2		
5	A	1	Total	C	O	0	0
			4	2	2		
5	A	1	Total	C	O	0	0
			4	2	2		
5	A	1	Total	C	O	0	0
			4	2	2		
5	A	1	Total	C	O	0	0
			4	2	2		
5	B	1	Total	C	O	0	0
			4	2	2		
5	B	1	Total	C	O	0	0
			4	2	2		
5	B	1	Total	C	O	0	0
			4	2	2		
5	B	1	Total	C	O	0	0
			4	2	2		
5	B	1	Total	C	O	0	0
			4	2	2		
5	B	1	Total	C	O	0	0
			4	2	2		

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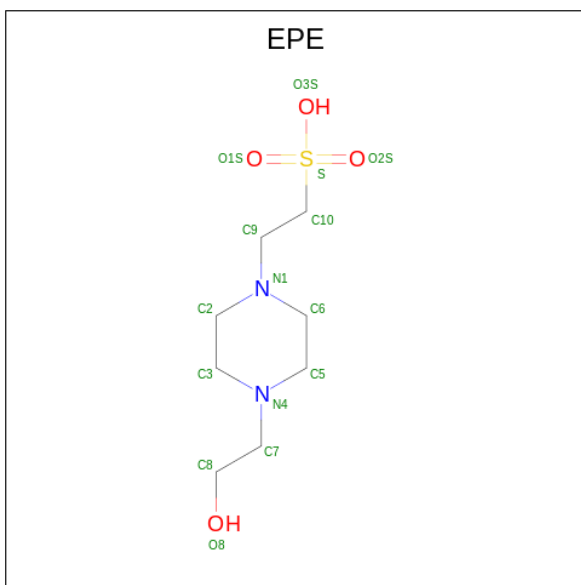
Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
5	B	1	Total	C	O	0	0
			4	2	2		
5	B	1	Total	C	O	0	0
			4	2	2		
5	B	1	Total	C	O	0	0
			4	2	2		
5	B	1	Total	C	O	0	0
			4	2	2		
5	B	1	Total	C	O	0	0
			4	2	2		
5	B	1	Total	C	O	0	0
			4	2	2		
5	B	1	Total	C	O	0	0
			4	2	2		
5	B	1	Total	C	O	0	0
			4	2	2		
5	C	1	Total	C	O	0	0
			4	2	2		
5	C	1	Total	C	O	0	0
			4	2	2		
5	C	1	Total	C	O	0	0
			4	2	2		
5	C	1	Total	C	O	0	0
			4	2	2		
5	C	1	Total	C	O	0	0
			4	2	2		
5	C	1	Total	C	O	0	0
			4	2	2		
5	C	1	Total	C	O	0	0
			4	2	2		
5	C	1	Total	C	O	0	0
			4	2	2		
5	C	1	Total	C	O	0	0
			4	2	2		

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Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
5	C	1	Total	C	O	0	0
			4	2	2		
5	C	1	Total	C	O	0	0
			4	2	2		
5	C	1	Total	C	O	0	0
			4	2	2		
5	D	1	Total	C	O	0	0
			4	2	2		
5	D	1	Total	C	O	0	0
			4	2	2		
5	D	1	Total	C	O	0	0
			4	2	2		
5	D	1	Total	C	O	0	0
			4	2	2		
5	D	1	Total	C	O	0	0
			4	2	2		
5	D	1	Total	C	O	0	0
			4	2	2		
5	D	1	Total	C	O	0	0
			4	2	2		
5	D	1	Total	C	O	0	0
			4	2	2		
5	D	1	Total	C	O	0	0
			4	2	2		
5	D	1	Total	C	O	0	0
			4	2	2		
5	D	1	Total	C	O	0	0
			4	2	2		

- Molecule 6 is 4-(2-HYDROXYETHYL)-1-PIPERAZINE ETHANESULFONIC ACID (CCD ID: EPE) (formula: C₈H₁₈N₂O₄S) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
6	B	1	Total	C	N	O	S	0	0
			15	8	2	4	1		

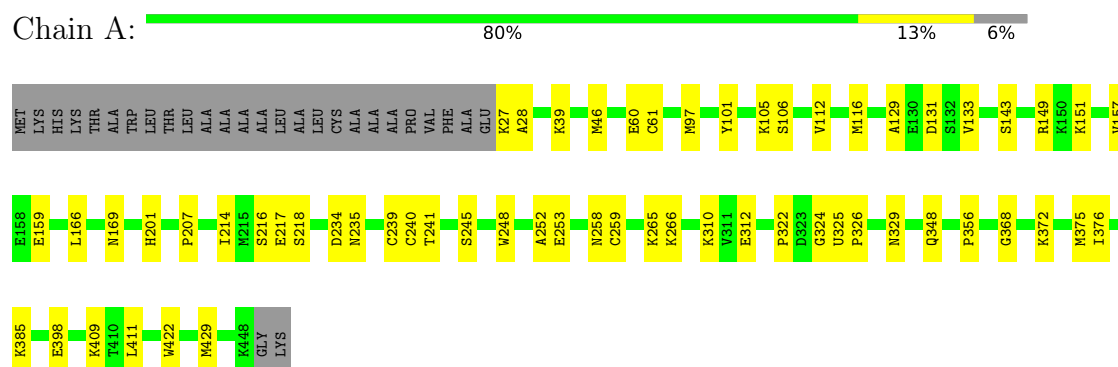
- Molecule 7 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
7	A	277	Total	O	0	0
			277	277		
7	B	259	Total	O	0	0
			259	259		
7	C	165	Total	O	0	0
			165	165		
7	D	261	Total	O	0	0
			261	261		

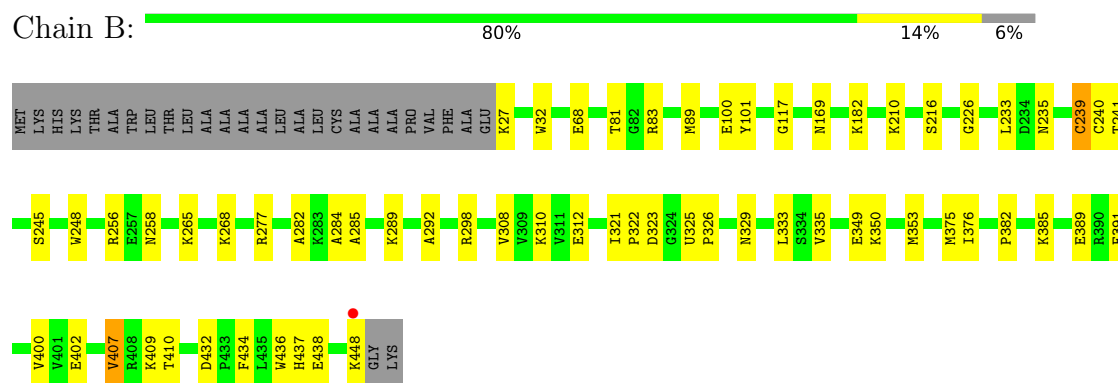
3 Residue-property plots

These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and electron density. Residues are color-coded according to the number of geometric quality criteria for which they contain at least one outlier: green = 0, yellow = 1, orange = 2 and red = 3 or more. A red dot above a residue indicates a poor fit to the electron density ($RSRZ > 2$). Stretches of 2 or more consecutive residues without any outlier are shown as a green connector. Residues present in the sample, but not in the model, are shown in grey.

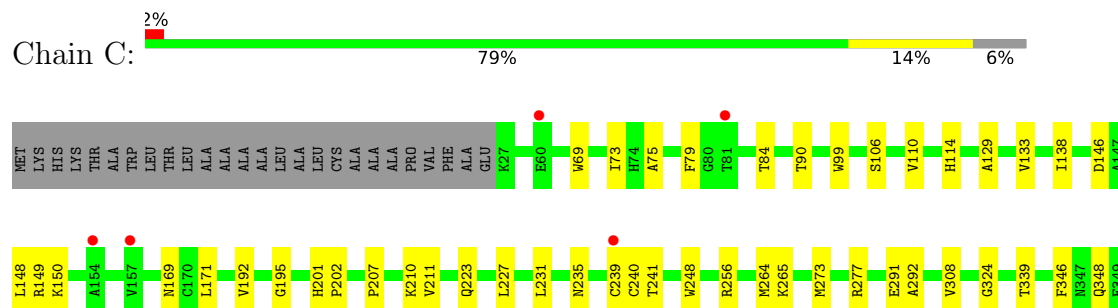
- Molecule 1: Cytochrome c, Multiheme cytochrome c selenoprotein (MccSep)

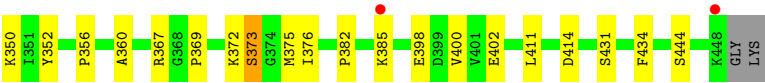


- Molecule 1: Cytochrome c, Multiheme cytochrome c selenoprotein (MccSep)

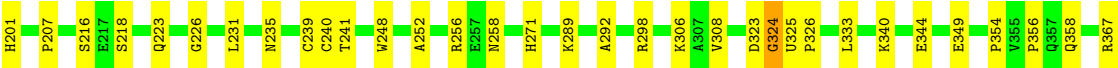
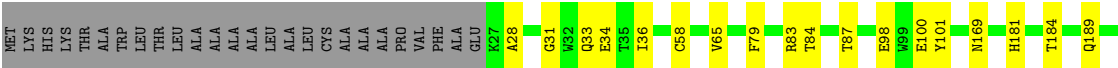
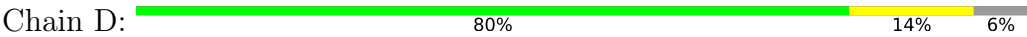


- Molecule 1: Cytochrome c, Multiheme cytochrome c selenoprotein (MccSep)





● Molecule 1: Cytochrome c,Multiheme cytochrome c selenoprotein (MccSep)



4 Data and refinement statistics

Property	Value	Source
Space group	P 1 21 1	Depositor
Cell constants a, b, c, α , β , γ	83.45Å 123.56Å 116.61Å 90.00° 92.15° 90.00°	Depositor
Resolution (Å)	45.25 – 2.20 45.25 – 2.20	Depositor EDS
% Data completeness (in resolution range)	99.7 (45.25-2.20) 99.9 (45.25-2.20)	Depositor EDS
R_{merge}	0.81	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	2.45 (at 2.20Å)	Xtriage
Refinement program	PHENIX 1.20.1_4487	Depositor
R, R_{free}	0.165 , 0.206 0.161 , 0.202	Depositor DCC
R_{free} test set	5982 reflections (5.00%)	wwPDB-VP
Wilson B-factor (Å ²)	41.6	Xtriage
Anisotropy	0.443	Xtriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.32 , 34.7	EDS
L-test for twinning ²	$\langle L \rangle = 0.50$, $\langle L^2 \rangle = 0.33$	Xtriage
Estimated twinning fraction	0.053 for h,-k,-l	Xtriage
F_o, F_c correlation	0.97	EDS
Total number of atoms	15615	wwPDB-VP
Average B, all atoms (Å ²)	46.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 3.60% of the height of the origin peak. No significant pseudotranslation is detected.*

¹Intensities estimated from amplitudes.

²Theoretical values of $\langle |L| \rangle$, $\langle L^2 \rangle$ for acentric reflections are 0.5, 0.333 respectively for untwinned datasets, and 0.375, 0.2 for perfectly twinned datasets.

5 Model quality [i](#)

5.1 Standard geometry [i](#)

Bond lengths and bond angles in the following residue types are not validated in this section: EDO, HEC, EPE, SO4, SEC, BSY

The Z score for a bond length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with $|Z| > 5$ is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	$\# Z > 5$	RMSZ	$\# Z > 5$
1	A	0.32	0/3489	0.49	0/4706
1	B	0.32	0/3479	0.52	0/4695
1	C	0.28	0/3456	0.47	0/4661
1	D	0.31	0/3435	0.48	0/4635
All	All	0.31	0/13859	0.49	0/18697

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts [i](#)

In the following table, the Non-H and H(model) columns list the number of non-hydrogen atoms and hydrogen atoms in the chain respectively. The H(added) column lists the number of hydrogen atoms added and optimized by MolProbity. The Clashes column lists the number of clashes within the asymmetric unit, whereas Symm-Clashes lists symmetry-related clashes.

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	3385	0	3312	50	0
1	B	3376	0	3298	62	0
1	C	3370	0	3283	45	0
1	D	3346	0	3259	53	0
2	A	215	0	150	5	0
2	B	215	0	150	2	0
2	C	215	0	150	4	0
2	D	215	0	150	6	0
3	A	4	0	0	0	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
3	B	4	0	0	0	0
3	C	4	0	0	0	0
3	D	4	0	0	1	0
4	A	10	0	0	0	0
4	B	5	0	0	0	0
4	C	5	0	0	1	0
4	D	5	0	0	1	0
5	A	76	0	114	18	0
5	B	72	0	108	22	0
5	C	56	0	84	8	0
5	D	56	0	84	13	0
6	B	15	0	17	4	0
7	A	277	0	0	9	0
7	B	259	0	0	6	0
7	C	165	0	0	7	0
7	D	261	0	0	8	0
All	All	15615	0	14159	223	0

The all-atom clashscore is defined as the number of clashes found per 1000 atoms (including hydrogen atoms). The all-atom clashscore for this structure is 8.

The worst 5 of 223 close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:239[B]:CYS:SG	1:B:240[B]:CYS:N	2.26	0.99
1:A:239[B]:CYS:SG	1:A:240[B]:CYS:N	2.31	0.96
1:D:239[B]:CYS:SG	1:D:240[B]:CYS:N	2.31	0.94
5:B:518:EDO:H11	1:D:298:ARG:HH12	1.31	0.92
5:A:524:EDO:O2	7:A:601:HOH:O	1.99	0.80

There are no symmetry-related clashes.

5.3 Torsion angles [i](#)

5.3.1 Protein backbone [i](#)

In the following table, the Percentiles column shows the percent Ramachandran outliers of the chain as a percentile score with respect to all X-ray entries followed by that with respect to entries of similar resolution.

The Analysed column shows the number of residues for which the backbone conformation was analysed, and the total number of residues.

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	A	438/450 (97%)	416 (95%)	22 (5%)	0	100	100
1	B	436/450 (97%)	420 (96%)	16 (4%)	0	100	100
1	C	434/450 (96%)	413 (95%)	19 (4%)	2 (0%)	24	27
1	D	432/450 (96%)	415 (96%)	15 (4%)	2 (0%)	24	27
All	All	1740/1800 (97%)	1664 (96%)	72 (4%)	4 (0%)	48	51

All (4) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	C	324[A]	GLY
1	C	324[B]	GLY
1	D	324[A]	GLY
1	D	324[B]	GLY

5.3.2 Protein sidechains ⓘ

In the following table, the Percentiles column shows the percent sidechain outliers of the chain as a percentile score with respect to all X-ray entries followed by that with respect to entries of similar resolution.

The Analysed column shows the number of residues for which the sidechain conformation was analysed, and the total number of residues.

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	A	370/369 (100%)	364 (98%)	6 (2%)	55	71
1	B	368/369 (100%)	364 (99%)	4 (1%)	65	79
1	C	366/369 (99%)	360 (98%)	6 (2%)	55	71
1	D	364/369 (99%)	361 (99%)	3 (1%)	73	85
All	All	1468/1476 (100%)	1449 (99%)	19 (1%)	63	76

5 of 19 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	C	373	SER
1	D	235	ASN
1	D	400	VAL
1	D	58	CYS

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Mol	Chain	Res	Type
1	B	239[B]	CYS

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (5) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	441	GLN
1	B	220	GLN
1	B	230	ASN
1	B	348	GLN
1	D	71	GLN

5.3.3 RNA [i](#)

There are no RNA molecules in this entry.

5.4 Non-standard residues in protein, DNA, RNA chains [i](#)

There are no non-standard protein/DNA/RNA residues in this entry.

5.5 Carbohydrates [i](#)

There are no oligosaccharides in this entry.

5.6 Ligand geometry [i](#)

95 ligands are modelled in this entry.

In the following table, the Counts columns list the number of bonds (or angles) for which Mogul statistics could be retrieved, the number of bonds (or angles) that are observed in the model and the number of bonds (or angles) that are defined in the Chemical Component Dictionary. The Link column lists molecule types, if any, to which the group is linked. The Z score for a bond length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with $|Z| > 2$ is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\# Z > 2$	Counts	RMSZ	$\# Z > 2$
5	EDO	A	520	-	3,3,3	0.39	0	2,2,2	0.24	0
5	EDO	A	514	-	3,3,3	0.70	0	2,2,2	0.23	0
5	EDO	A	527	-	3,3,3	0.49	0	2,2,2	0.24	0

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
5	EDO	D	520	-	3,3,3	0.55	0	2,2,2	0.13	0
2	HEC	D	502	1	50,50,50	1.57	8 (16%)	68,82,82	1.57	15 (22%)
5	EDO	C	510	-	3,3,3	0.59	0	2,2,2	0.17	0
5	EDO	B	515	-	3,3,3	0.48	0	2,2,2	0.57	0
5	EDO	B	526	-	3,3,3	0.36	0	2,2,2	0.58	0
5	EDO	B	523	-	3,3,3	0.53	0	2,2,2	0.51	0
5	EDO	A	522	-	3,3,3	0.60	0	2,2,2	0.19	0
2	HEC	B	506	1	50,50,50	1.41	8 (16%)	68,82,82	1.29	8 (11%)
2	HEC	D	506	1	50,50,50	1.46	8 (16%)	68,82,82	1.32	10 (14%)
2	HEC	B	503	1	50,50,50	1.35	5 (10%)	68,82,82	1.32	8 (11%)
5	EDO	C	512	-	3,3,3	0.48	0	2,2,2	0.34	0
2	HEC	D	504	1	50,50,50	1.40	6 (12%)	68,82,82	1.33	7 (10%)
5	EDO	B	513	-	3,3,3	0.42	0	2,2,2	0.71	0
5	EDO	D	519	-	3,3,3	0.51	0	2,2,2	0.31	0
5	EDO	C	517	-	3,3,3	0.40	0	2,2,2	0.36	0
2	HEC	C	505	1	50,50,50	1.44	7 (14%)	68,82,82	1.34	10 (14%)
5	EDO	D	515	-	3,3,3	0.49	0	2,2,2	0.28	0
5	EDO	C	501	-	3,3,3	0.48	0	2,2,2	0.44	0
5	EDO	B	511	-	3,3,3	0.48	0	2,2,2	0.48	0
5	EDO	D	509	-	3,3,3	0.51	0	2,2,2	0.32	0
2	HEC	C	502	1	50,50,50	1.53	7 (14%)	68,82,82	1.43	10 (14%)
5	EDO	B	521	-	3,3,3	0.47	0	2,2,2	0.33	0
5	EDO	B	516	-	3,3,3	0.52	0	2,2,2	0.38	0
4	SO4	A	508	-	4,4,4	0.14	0	6,6,6	0.27	0
5	EDO	D	513	-	3,3,3	0.50	0	2,2,2	0.43	0
5	EDO	A	513	-	3,3,3	0.41	0	2,2,2	0.45	0
5	EDO	D	517	-	3,3,3	0.71	0	2,2,2	0.27	0
5	EDO	D	501	-	3,3,3	0.37	0	2,2,2	0.59	0
5	EDO	B	514	-	3,3,3	0.50	0	2,2,2	0.38	0
5	EDO	A	523	-	3,3,3	0.44	0	2,2,2	0.53	0
5	EDO	D	510	-	3,3,3	0.49	0	2,2,2	0.47	0
5	EDO	A	517	-	3,3,3	0.44	0	2,2,2	0.46	0
5	EDO	A	518	-	3,3,3	0.56	0	2,2,2	0.29	0
5	EDO	B	519	-	3,3,3	0.51	0	2,2,2	0.19	0
5	EDO	B	520	-	3,3,3	0.49	0	2,2,2	0.27	0
5	EDO	A	510	-	3,3,3	0.43	0	2,2,2	0.38	0
5	EDO	C	515	-	3,3,3	0.56	0	2,2,2	0.34	0
5	EDO	C	516	-	3,3,3	0.54	0	2,2,2	0.21	0
5	EDO	D	511	-	3,3,3	0.47	0	2,2,2	0.46	0
5	EDO	D	512	-	3,3,3	0.51	0	2,2,2	0.39	0
2	HEC	A	505	1	50,50,50	1.44	7 (14%)	68,82,82	1.30	9 (13%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
4	SO4	C	508	-	4,4,4	0.16	0	6,6,6	0.11	0
5	EDO	D	516	-	3,3,3	0.50	0	2,2,2	0.35	0
5	EDO	C	519	-	3,3,3	0.48	0	2,2,2	0.33	0
3	BSY	C	507	-	1,3,3	1.30	0	2,3,3	7.70	2 (100%)
5	EDO	B	510	-	3,3,3	0.54	0	2,2,2	0.07	0
5	EDO	C	513	-	3,3,3	0.50	0	2,2,2	0.27	0
5	EDO	A	516	-	3,3,3	0.49	0	2,2,2	0.57	0
5	EDO	C	518	-	3,3,3	0.50	0	2,2,2	0.24	0
2	HEC	B	504	1	50,50,50	1.44	6 (12%)	68,82,82	1.35	10 (14%)
2	HEC	C	506	1	50,50,50	1.56	6 (12%)	68,82,82	1.43	12 (17%)
3	BSY	B	507	-	1,3,3	1.30	0	2,3,3	8.07	2 (100%)
5	EDO	A	526	-	3,3,3	0.39	0	2,2,2	0.53	0
5	EDO	C	514	-	3,3,3	0.43	0	2,2,2	0.25	0
5	EDO	C	511	-	3,3,3	0.43	0	2,2,2	0.52	0
2	HEC	D	503	1	50,50,50	1.34	6 (12%)	68,82,82	1.30	10 (14%)
5	EDO	A	512	-	3,3,3	0.55	0	2,2,2	0.08	0
5	EDO	A	524	-	3,3,3	0.52	0	2,2,2	0.18	0
2	HEC	C	503	1	50,50,50	1.48	6 (12%)	68,82,82	1.36	9 (13%)
4	SO4	D	508	-	4,4,4	0.15	0	6,6,6	0.21	0
2	HEC	B	502	1	50,50,50	1.48	9 (18%)	68,82,82	1.42	10 (14%)
5	EDO	A	525	-	3,3,3	0.62	0	2,2,2	0.22	0
5	EDO	D	518	-	3,3,3	0.44	0	2,2,2	0.30	0
2	HEC	C	504	1	50,50,50	1.41	6 (12%)	68,82,82	1.28	8 (11%)
5	EDO	A	519	-	3,3,3	0.59	0	2,2,2	0.16	0
5	EDO	C	509	-	3,3,3	0.58	0	2,2,2	0.14	0
2	HEC	A	502	1	50,50,50	1.51	7 (14%)	68,82,82	1.41	11 (16%)
2	HEC	D	505	1	50,50,50	1.48	8 (16%)	68,82,82	1.27	8 (11%)
5	EDO	B	501	-	3,3,3	0.41	0	2,2,2	0.67	0
5	EDO	D	521	-	3,3,3	0.51	0	2,2,2	0.34	0
5	EDO	B	525	-	3,3,3	0.77	0	2,2,2	0.14	0
3	BSY	A	506	-	1,3,3	1.24	0	2,3,3	7.75	2 (100%)
5	EDO	D	514	-	3,3,3	0.54	0	2,2,2	0.19	0
5	EDO	C	520	-	3,3,3	0.53	0	2,2,2	0.33	0
5	EDO	C	521	-	3,3,3	0.50	0	2,2,2	0.26	0
5	EDO	B	517	-	3,3,3	0.44	0	2,2,2	0.42	0
5	EDO	A	511	-	3,3,3	0.57	0	2,2,2	0.34	0
5	EDO	B	518	-	3,3,3	0.46	0	2,2,2	0.44	0
5	EDO	A	509	-	3,3,3	0.65	0	2,2,2	0.20	0
2	HEC	A	503	1	50,50,50	1.39	7 (14%)	68,82,82	1.19	7 (10%)
4	SO4	B	508	-	4,4,4	0.14	0	6,6,6	0.14	0

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
4	SO4	A	507	-	4,4,4	0.19	0	6,6,6	0.14	0
5	EDO	B	524	-	3,3,3	0.53	0	2,2,2	0.26	0
2	HEC	A	501	1	50,50,50	1.42	8 (16%)	68,82,82	1.41	9 (13%)
2	HEC	A	504	1	50,50,50	1.48	6 (12%)	68,82,82	1.45	11 (16%)
5	EDO	A	521	-	3,3,3	0.65	0	2,2,2	0.36	0
6	EPE	B	509	-	15,15,15	0.76	1 (6%)	18,20,20	2.24	9 (50%)
3	BSY	D	507	-	1,3,3	1.29	0	2,3,3	8.04	2 (100%)
2	HEC	B	505	1	50,50,50	1.35	5 (10%)	68,82,82	1.18	6 (8%)
5	EDO	B	512	-	3,3,3	0.43	0	2,2,2	0.34	0
5	EDO	A	515	-	3,3,3	0.49	0	2,2,2	0.43	0
5	EDO	B	522	-	3,3,3	0.46	0	2,2,2	0.28	0

In the following table, the Chirals column lists the number of chiral outliers, the number of chiral centers analysed, the number of these observed in the model and the number defined in the Chemical Component Dictionary. Similar counts are reported in the Torsion and Rings columns. '-' means no outliers of that kind were identified.

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
5	EDO	A	520	-	-	0/1/1/1	-
5	EDO	A	514	-	-	1/1/1/1	-
5	EDO	A	527	-	-	0/1/1/1	-
5	EDO	D	520	-	-	1/1/1/1	-
2	HEC	D	502	1	1/1/3/7	8/14/54/54	-
5	EDO	C	510	-	-	0/1/1/1	-
5	EDO	B	515	-	-	0/1/1/1	-
5	EDO	B	526	-	-	0/1/1/1	-
5	EDO	B	523	-	-	1/1/1/1	-
5	EDO	A	522	-	-	0/1/1/1	-
2	HEC	B	506	1	-	9/14/54/54	-
2	HEC	D	506	1	-	8/14/54/54	-
2	HEC	B	503	1	-	7/14/54/54	-
5	EDO	C	512	-	-	0/1/1/1	-
2	HEC	D	504	1	1/1/3/7	4/14/54/54	-
5	EDO	B	513	-	-	1/1/1/1	-
5	EDO	D	519	-	-	1/1/1/1	-
5	EDO	C	517	-	-	1/1/1/1	-
2	HEC	C	505	1	1/1/3/7	4/14/54/54	-
5	EDO	D	515	-	-	1/1/1/1	-
5	EDO	C	501	-	-	0/1/1/1	-
5	EDO	B	511	-	-	0/1/1/1	-

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
5	EDO	D	509	-	-	0/1/1/1	-
2	HEC	C	502	1	1/1/3/7	4/14/54/54	-
5	EDO	B	521	-	-	0/1/1/1	-
5	EDO	B	516	-	-	0/1/1/1	-
5	EDO	D	513	-	-	1/1/1/1	-
5	EDO	A	513	-	-	0/1/1/1	-
5	EDO	D	517	-	-	1/1/1/1	-
5	EDO	D	501	-	-	0/1/1/1	-
5	EDO	B	514	-	-	0/1/1/1	-
5	EDO	A	523	-	-	0/1/1/1	-
5	EDO	D	510	-	-	0/1/1/1	-
5	EDO	A	517	-	-	0/1/1/1	-
5	EDO	A	518	-	-	1/1/1/1	-
5	EDO	B	519	-	-	0/1/1/1	-
5	EDO	B	520	-	-	1/1/1/1	-
5	EDO	A	510	-	-	0/1/1/1	-
5	EDO	C	515	-	-	0/1/1/1	-
5	EDO	C	516	-	-	0/1/1/1	-
5	EDO	D	511	-	-	1/1/1/1	-
5	EDO	D	512	-	-	1/1/1/1	-
2	HEC	A	505	1	-	9/14/54/54	-
5	EDO	D	516	-	-	1/1/1/1	-
5	EDO	C	519	-	-	0/1/1/1	-
5	EDO	B	510	-	-	0/1/1/1	-
5	EDO	C	513	-	-	0/1/1/1	-
5	EDO	A	516	-	-	0/1/1/1	-
5	EDO	C	518	-	-	1/1/1/1	-
2	HEC	B	504	1	1/1/3/7	4/14/54/54	-
2	HEC	C	506	1	-	8/14/54/54	-
5	EDO	A	526	-	-	0/1/1/1	-
5	EDO	C	514	-	-	1/1/1/1	-
5	EDO	C	511	-	-	1/1/1/1	-
2	HEC	D	503	1	1/1/3/7	8/14/54/54	-
5	EDO	A	512	-	-	0/1/1/1	-
5	EDO	A	524	-	-	1/1/1/1	-
2	HEC	C	503	1	1/1/3/7	8/14/54/54	-
2	HEC	B	502	1	1/1/3/7	8/14/54/54	-
5	EDO	A	525	-	-	0/1/1/1	-
5	EDO	D	518	-	-	0/1/1/1	-
2	HEC	C	504	1	1/1/3/7	4/14/54/54	-

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
5	EDO	A	519	-	-	0/1/1/1	-
5	EDO	C	509	-	-	0/1/1/1	-
2	HEC	A	502	1	1/1/3/7	8/14/54/54	-
2	HEC	D	505	1	1/1/3/7	4/14/54/54	-
5	EDO	B	501	-	-	1/1/1/1	-
5	EDO	D	521	-	-	1/1/1/1	-
5	EDO	B	525	-	-	1/1/1/1	-
5	EDO	D	514	-	-	0/1/1/1	-
5	EDO	C	520	-	-	0/1/1/1	-
5	EDO	C	521	-	-	1/1/1/1	-
5	EDO	B	517	-	-	1/1/1/1	-
5	EDO	A	511	-	-	1/1/1/1	-
5	EDO	B	518	-	-	0/1/1/1	-
5	EDO	A	509	-	-	0/1/1/1	-
2	HEC	A	503	1	1/1/3/7	6/14/54/54	-
5	EDO	B	524	-	-	1/1/1/1	-
2	HEC	A	501	1	1/1/3/7	7/14/54/54	-
2	HEC	A	504	1	1/1/3/7	4/14/54/54	-
5	EDO	A	521	-	-	1/1/1/1	-
6	EPE	B	509	-	-	3/9/19/19	0/1/1/1
2	HEC	B	505	1	1/1/3/7	4/14/54/54	-
5	EDO	B	512	-	-	0/1/1/1	-
5	EDO	A	515	-	-	0/1/1/1	-
5	EDO	B	522	-	-	0/1/1/1	-

The worst 5 of 137 bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	D	502	HEC	FE-NA	4.54	2.10	1.95
2	D	502	HEC	FE-ND	4.52	2.08	1.94
2	C	506	HEC	FE-ND	4.43	2.08	1.94
2	B	504	HEC	FE-ND	4.38	2.08	1.94
2	D	505	HEC	FE-NC	4.32	2.09	1.95

The worst 5 of 205 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	D	507	BSY	O2-SE-O3	8.77	122.99	100.13
3	B	507	BSY	O2-SE-O3	8.27	121.70	100.13
3	A	506	BSY	O1-SE-O3	7.91	120.77	100.13

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	C	507	BSY	O1-SE-O3	7.89	120.70	100.13
3	B	507	BSY	O1-SE-O3	7.86	120.63	100.13

5 of 15 chirality outliers are listed below:

Mol	Chain	Res	Type	Atom
2	A	501	HEC	NA
2	A	502	HEC	NA
2	A	503	HEC	NA
2	A	504	HEC	NA
2	B	502	HEC	NA

5 of 155 torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	A	501	HEC	C2C-C3C-CAC-CBC
2	A	502	HEC	C2C-C3C-CAC-CBC
2	B	502	HEC	C2C-C3C-CAC-CBC
2	C	502	HEC	C2C-C3C-CAC-CBC
2	C	503	HEC	C2C-C3C-CAC-CBC

There are no ring outliers.

52 monomers are involved in 82 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
5	A	520	EDO	4	0
5	A	514	EDO	3	0
5	A	527	EDO	3	0
5	D	520	EDO	1	0
2	D	502	HEC	1	0
5	C	510	EDO	1	0
5	B	526	EDO	1	0
5	B	523	EDO	3	0
2	B	506	HEC	1	0
2	D	506	HEC	1	0
2	B	503	HEC	1	0
5	B	513	EDO	1	0
5	C	517	EDO	2	0
2	C	505	HEC	1	0
5	D	515	EDO	1	0
5	B	511	EDO	1	0
5	D	509	EDO	1	0

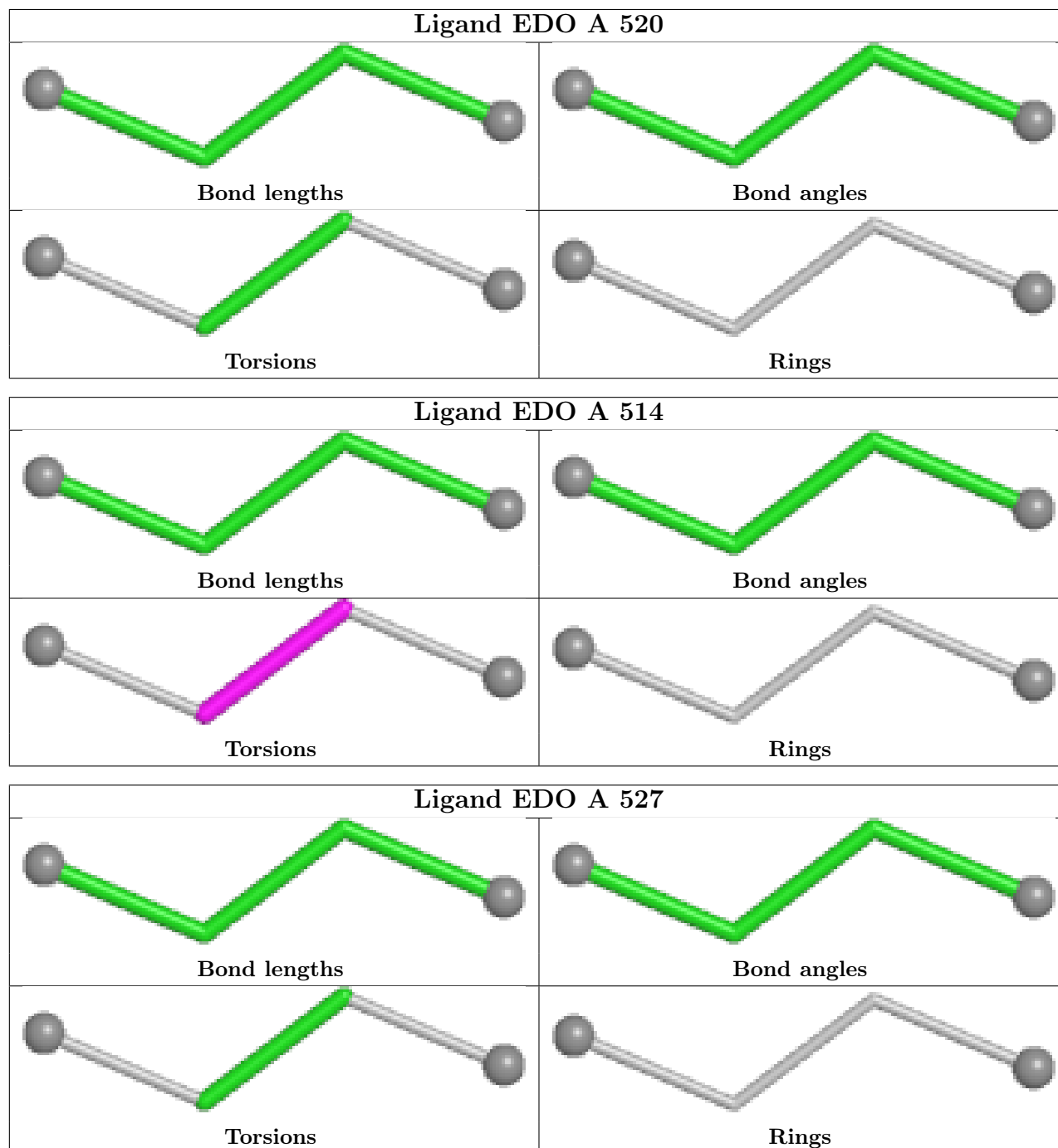
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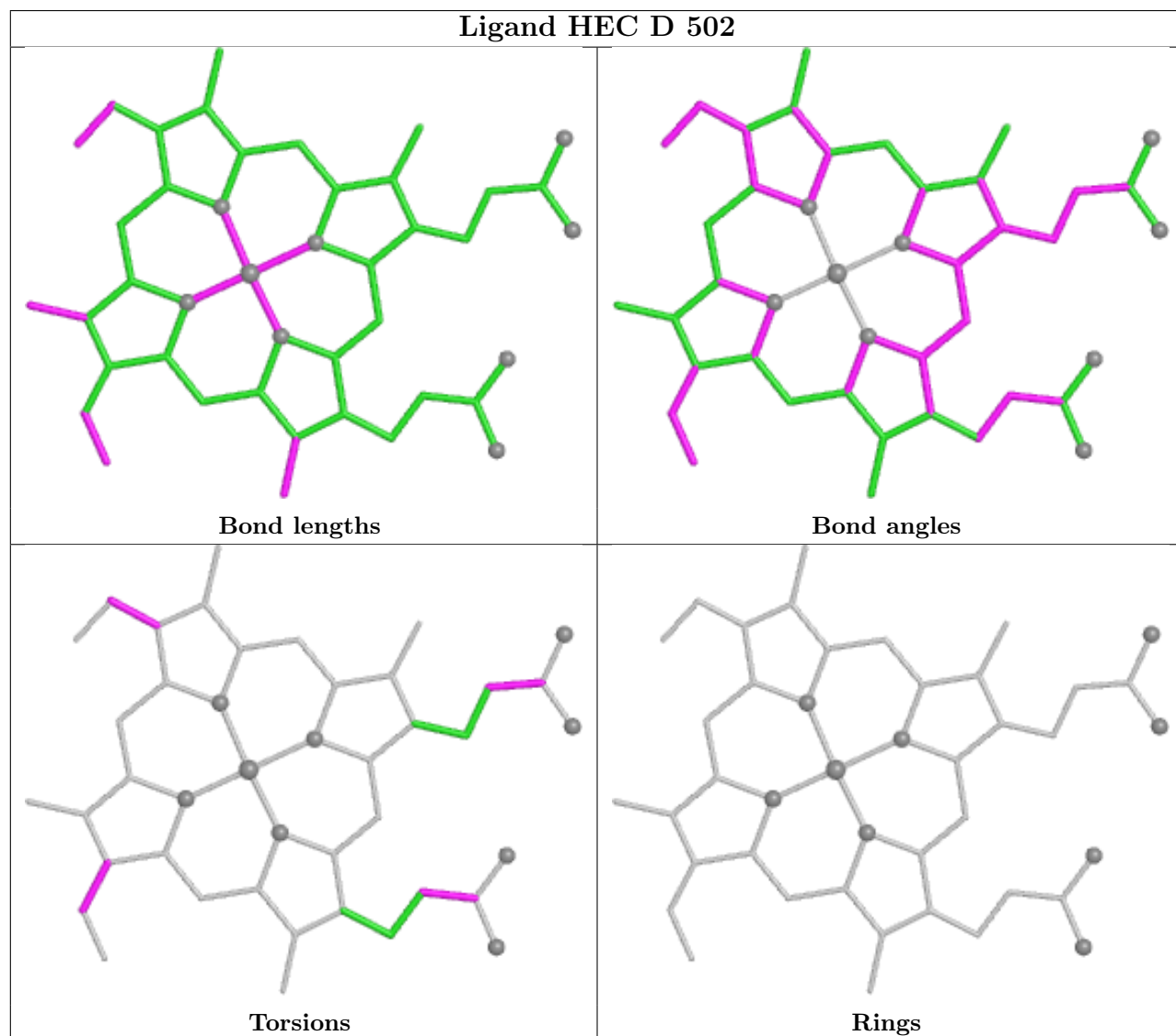
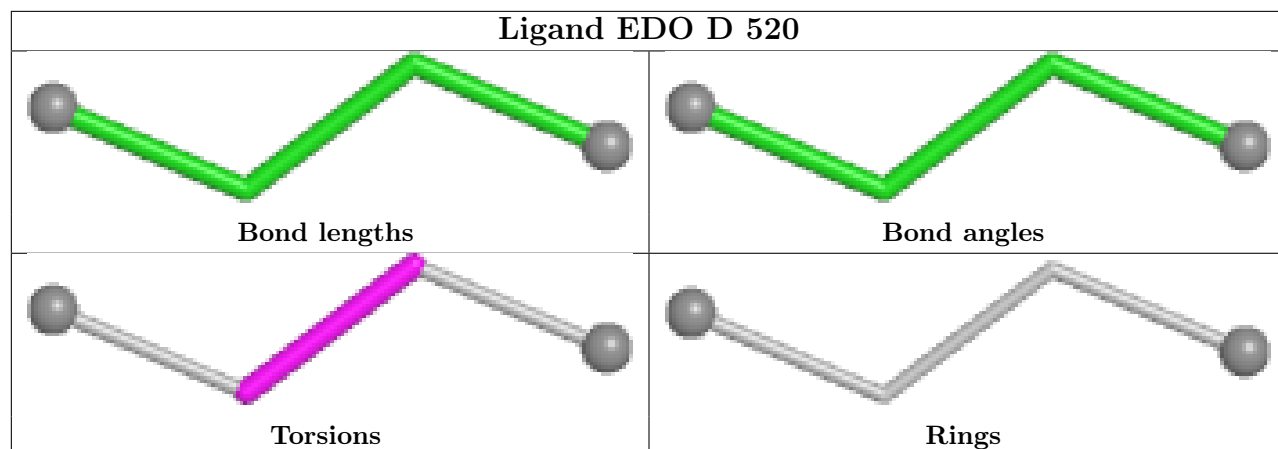
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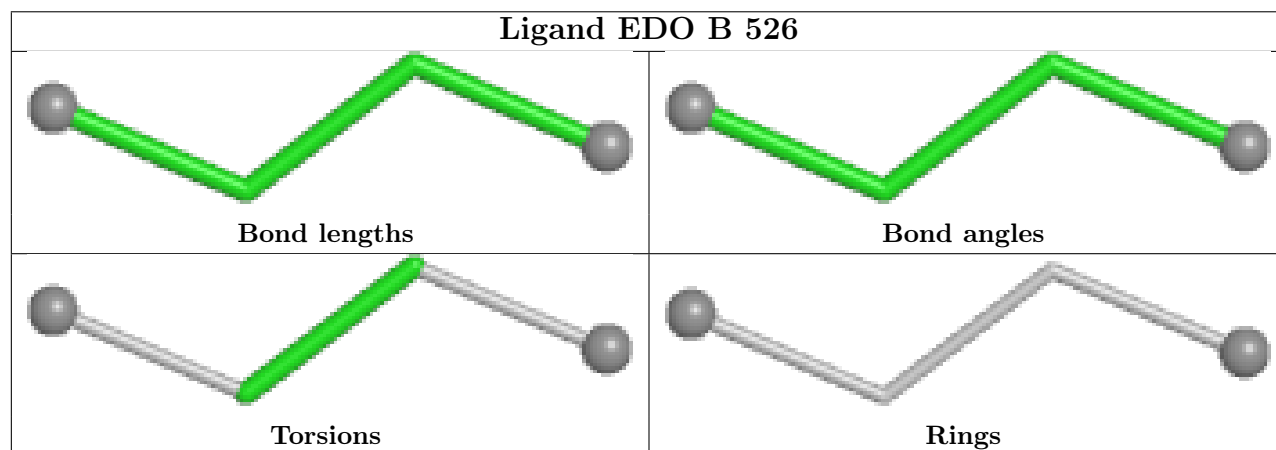
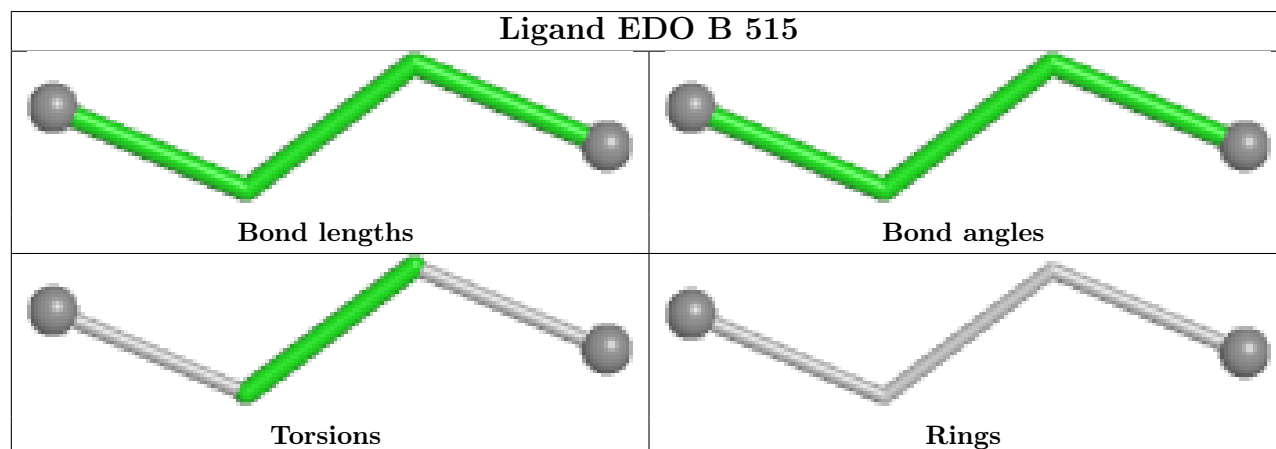
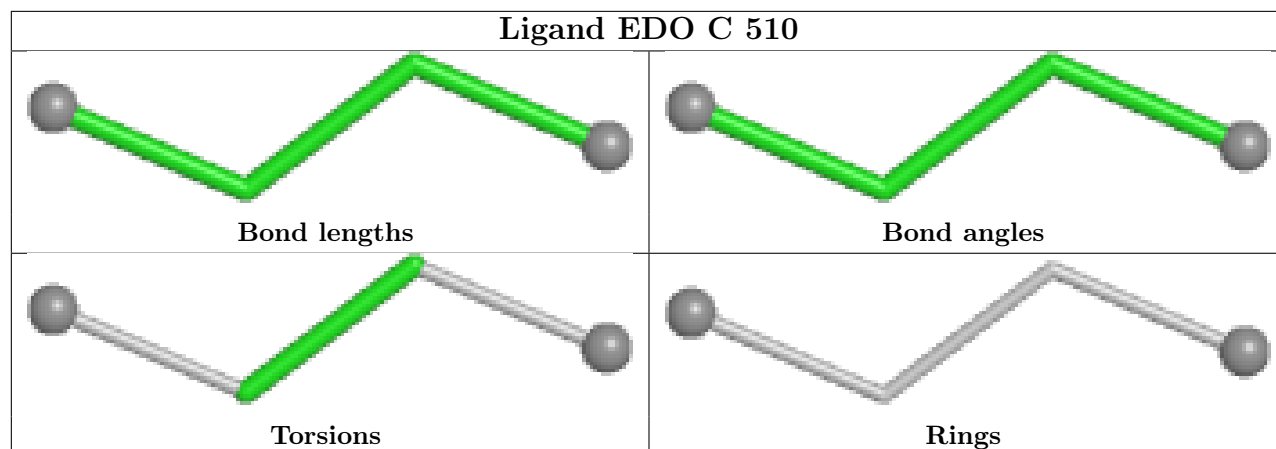
Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	C	502	HEC	1	0
5	B	521	EDO	4	0
5	B	516	EDO	2	0
5	A	513	EDO	1	0
5	D	517	EDO	1	0
5	D	501	EDO	1	0
5	B	520	EDO	4	0
5	A	510	EDO	2	0
5	C	515	EDO	1	0
5	D	511	EDO	2	0
5	D	512	EDO	1	0
2	A	505	HEC	1	0
4	C	508	SO4	1	0
5	B	510	EDO	1	0
5	C	518	EDO	1	0
2	C	506	HEC	1	0
5	C	511	EDO	1	0
2	D	503	HEC	4	0
5	A	512	EDO	1	0
5	A	524	EDO	2	0
4	D	508	SO4	1	0
5	D	518	EDO	3	0
2	C	504	HEC	1	0
5	A	519	EDO	1	0
2	A	502	HEC	2	0
5	B	501	EDO	1	0
5	D	521	EDO	2	0
5	C	521	EDO	2	0
5	B	517	EDO	1	0
5	B	518	EDO	1	0
2	A	503	HEC	2	0
5	A	521	EDO	1	0
6	B	509	EPE	4	0
3	D	507	BSY	1	0
5	B	522	EDO	2	0

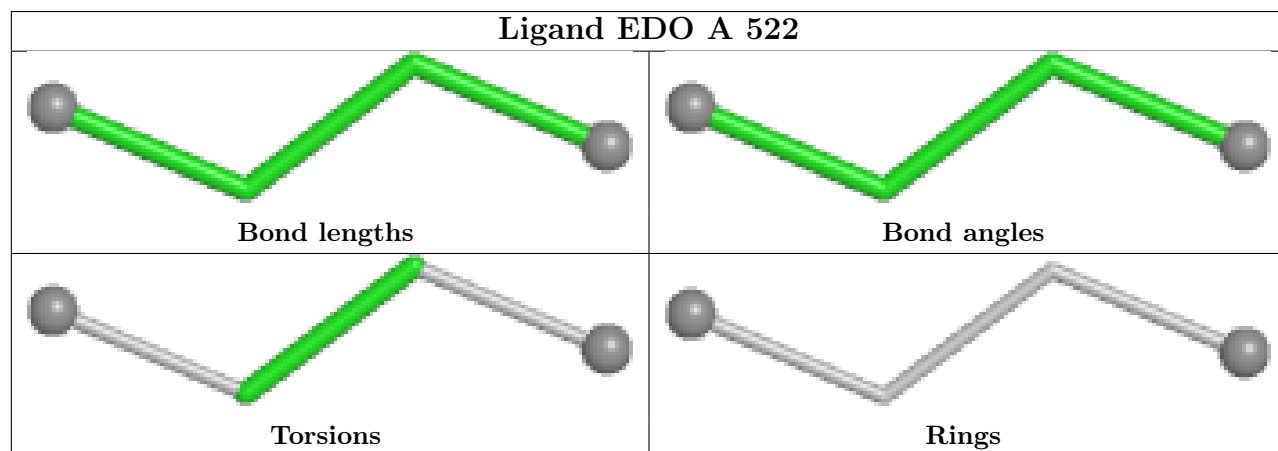
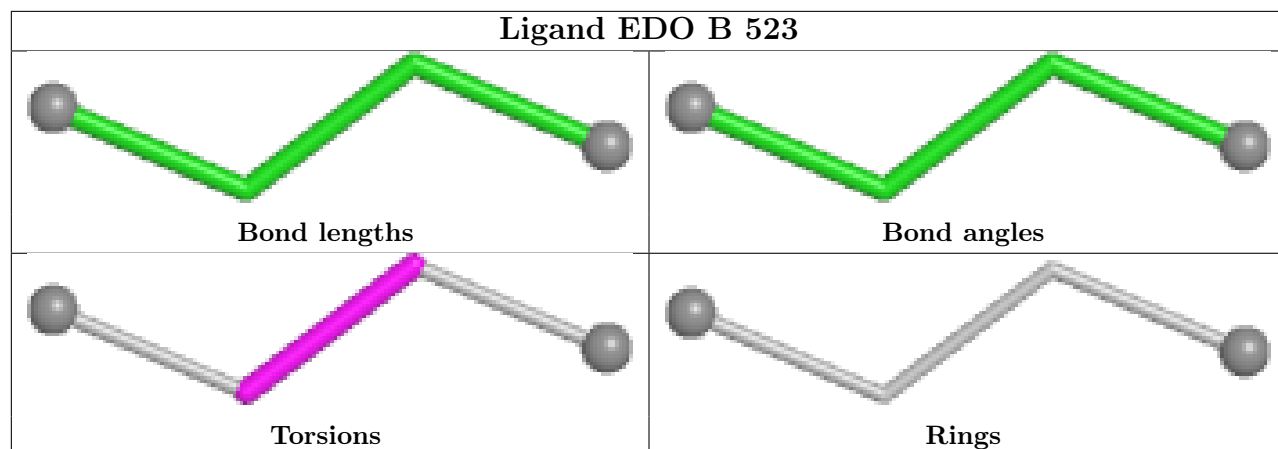
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included. For torsion angles, if less than 5% of the Mogul distribution of torsion angles is within 10 degrees of the torsion angle in question, then that torsion angle is considered an outlier. Any bond that is central to one or more torsion angles identified as an outlier by Mogul will be highlighted in the graph. For rings, the root-mean-square deviation (RMSD) between the ring

in question and similar rings identified by Mogul is calculated over all ring torsion angles. If the average RMSD is greater than 60 degrees and the minimal RMSD between the ring in question and any Mogul-identified rings is also greater than 60 degrees, then that ring is considered an outlier. The outliers are highlighted in purple. The color gray indicates Mogul did not find sufficient equivalents in the CSD to analyse the geometry.

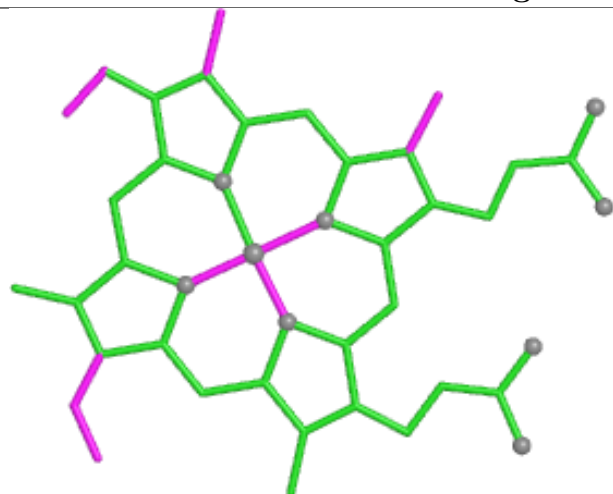




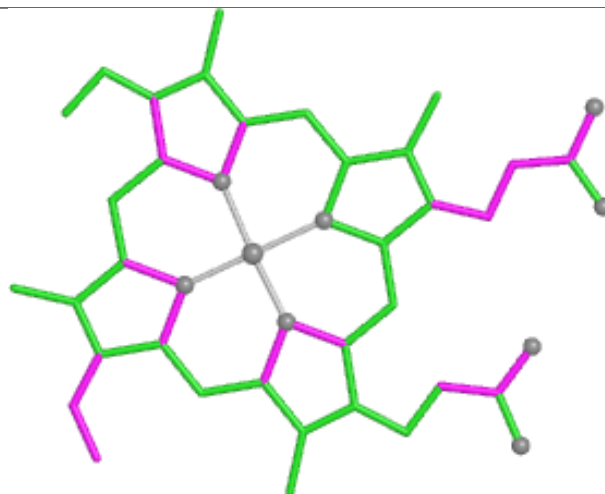




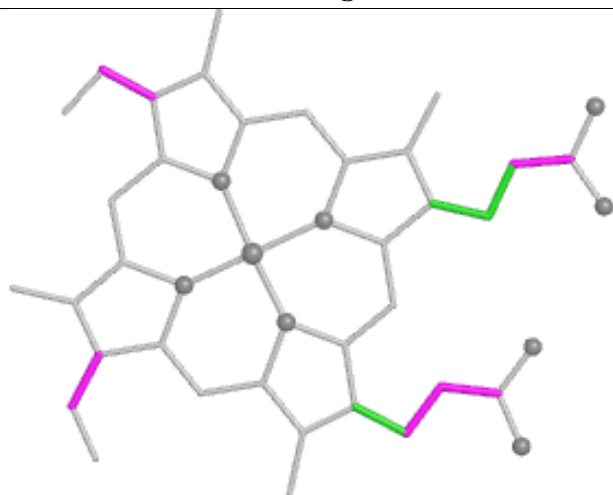
Ligand HEC B 506



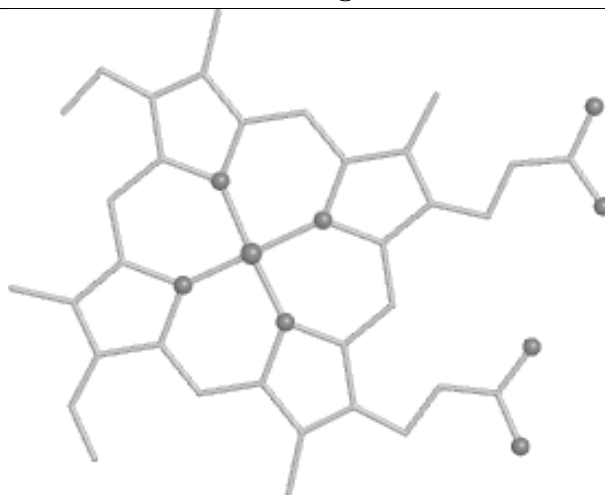
Bond lengths



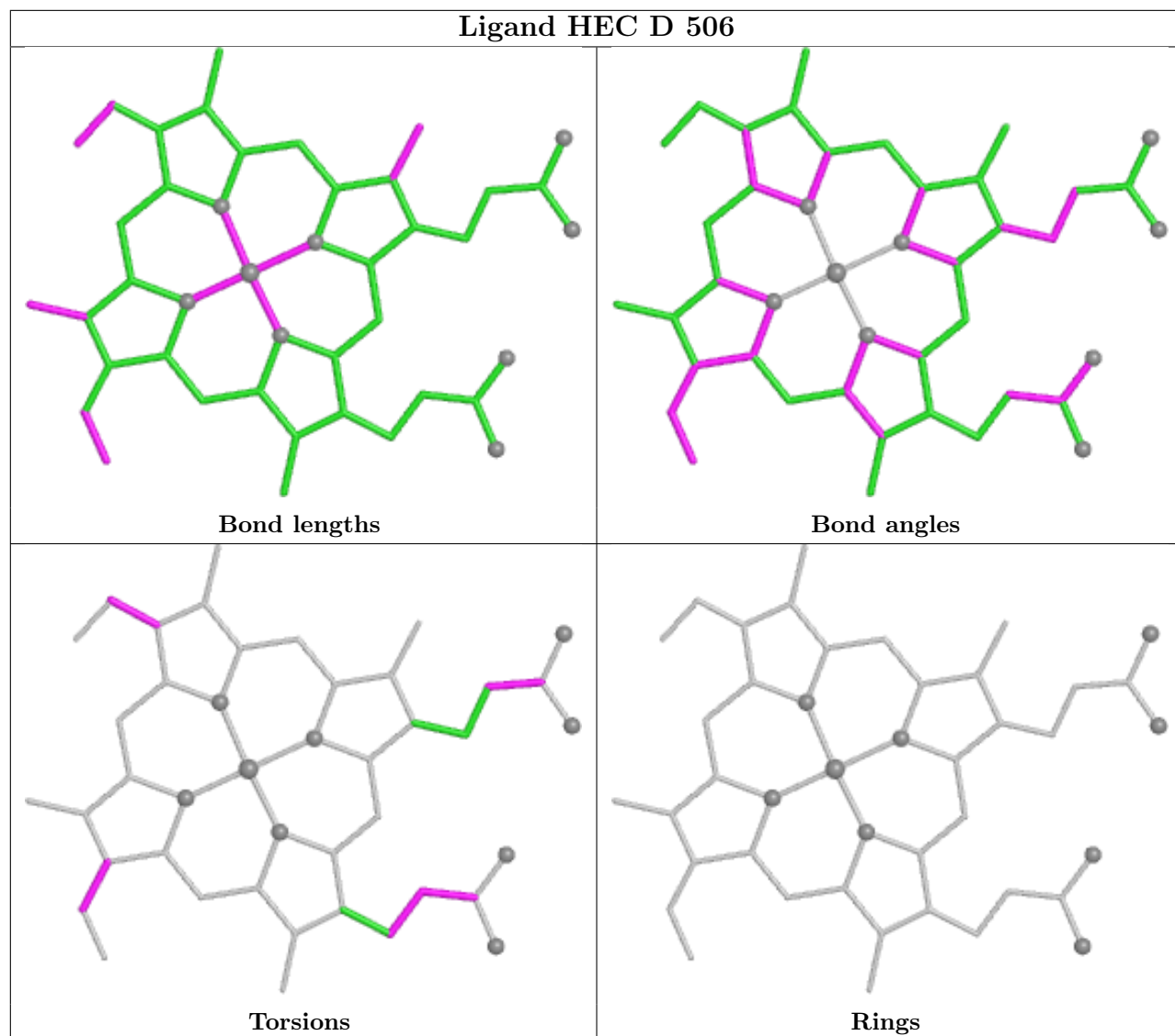
Bond angles



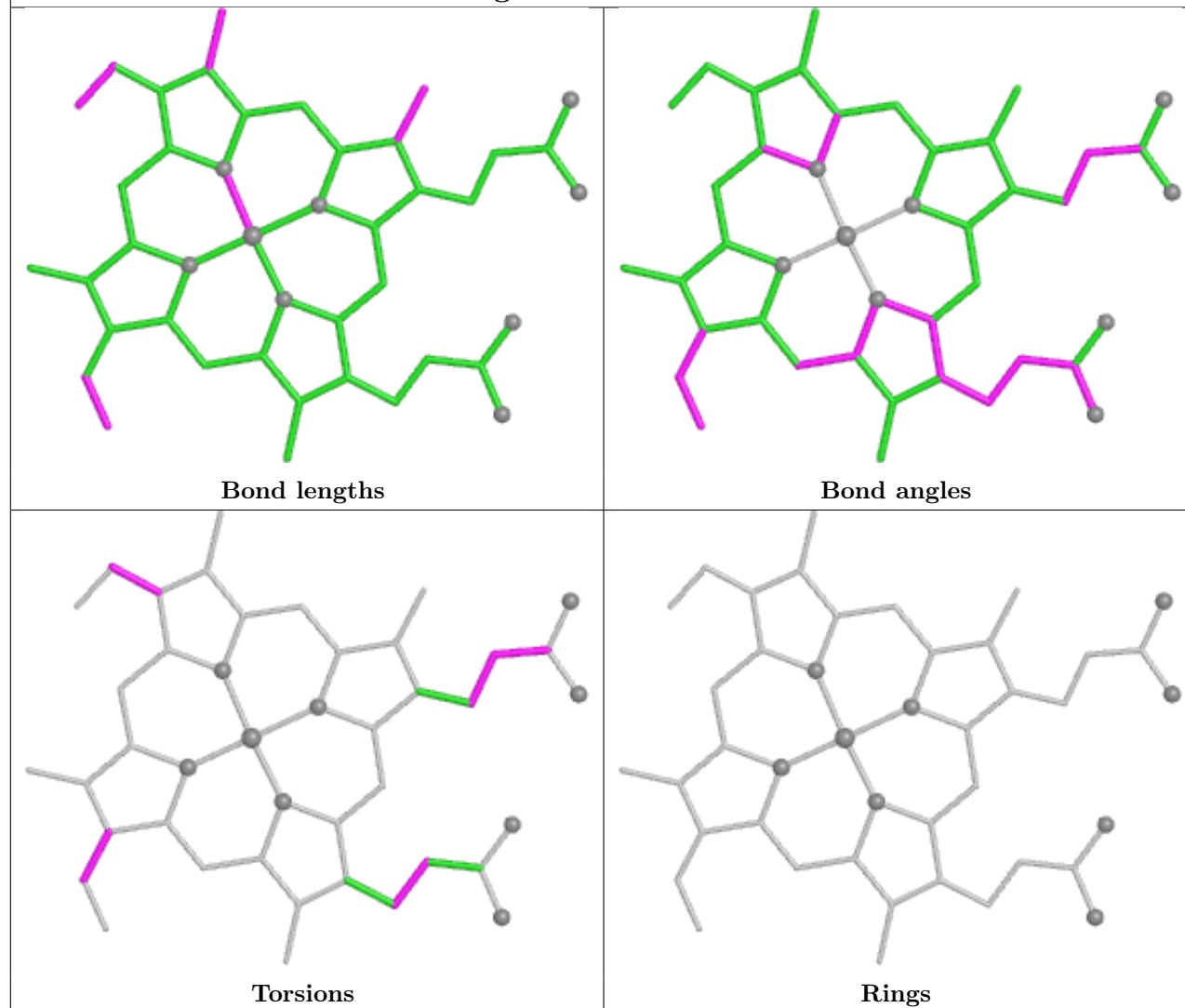
Torsions



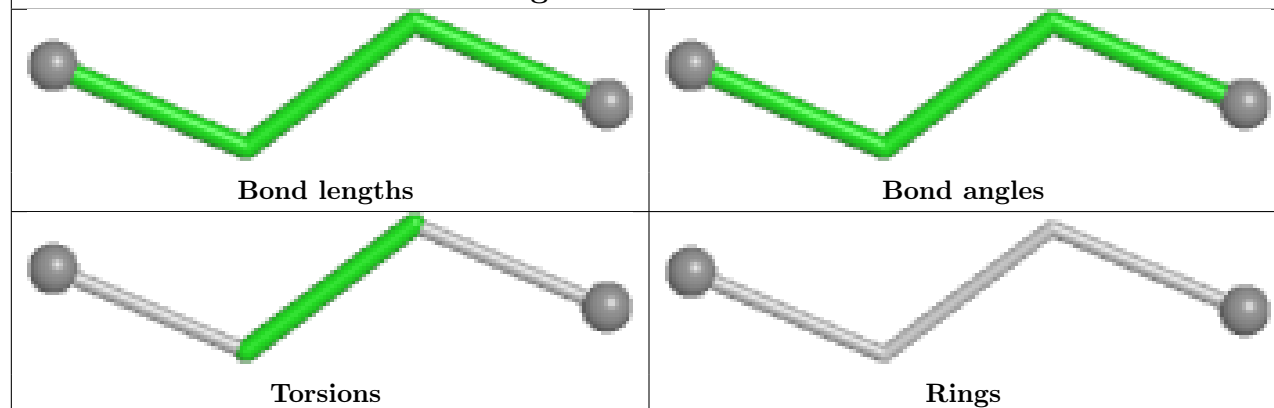
Rings



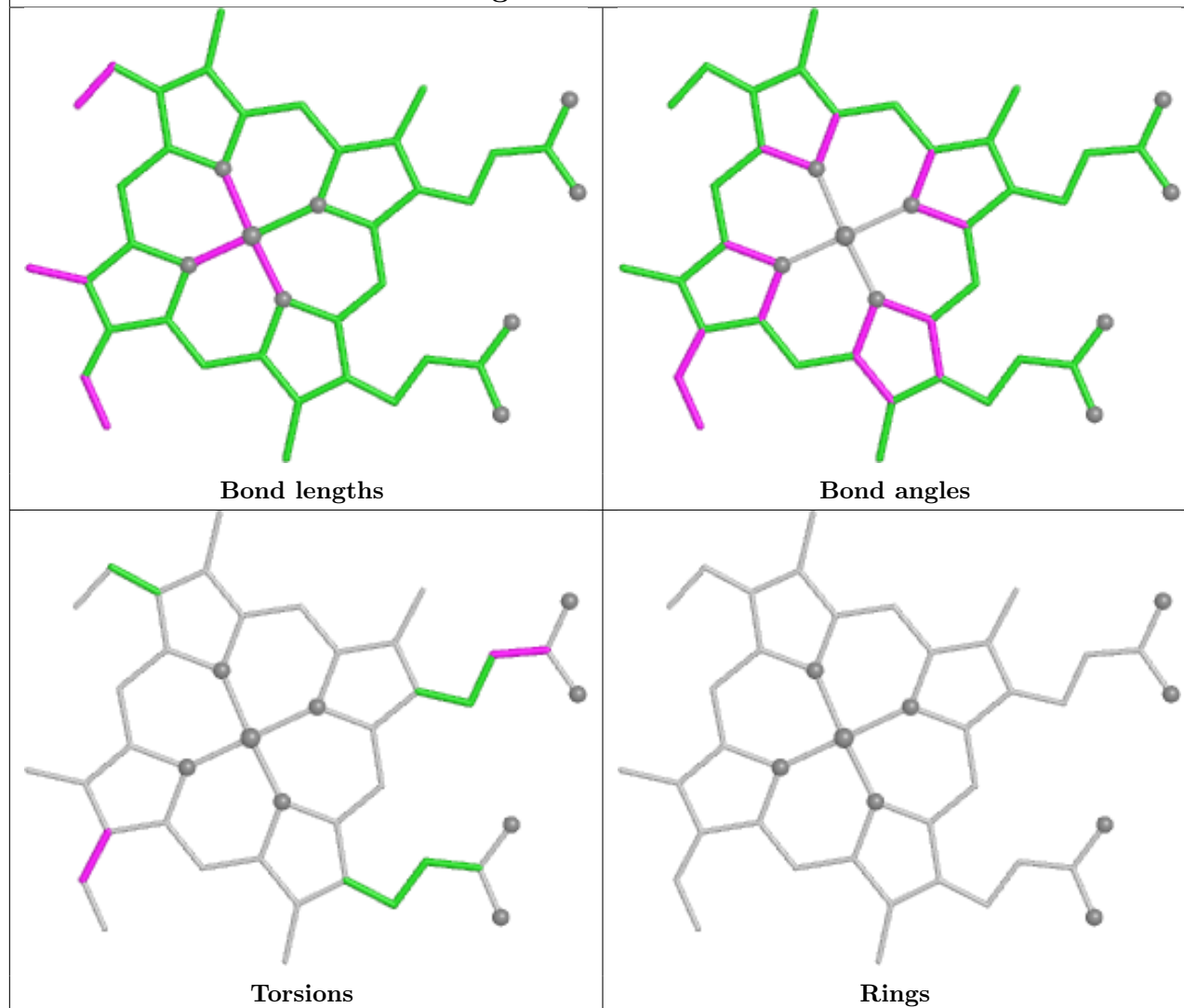
Ligand HEC B 503



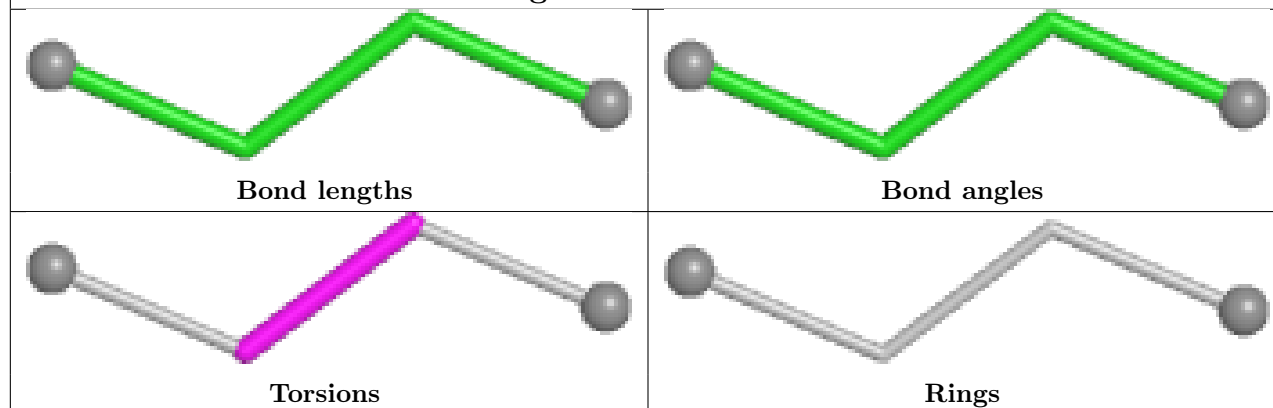
Ligand EDO C 512

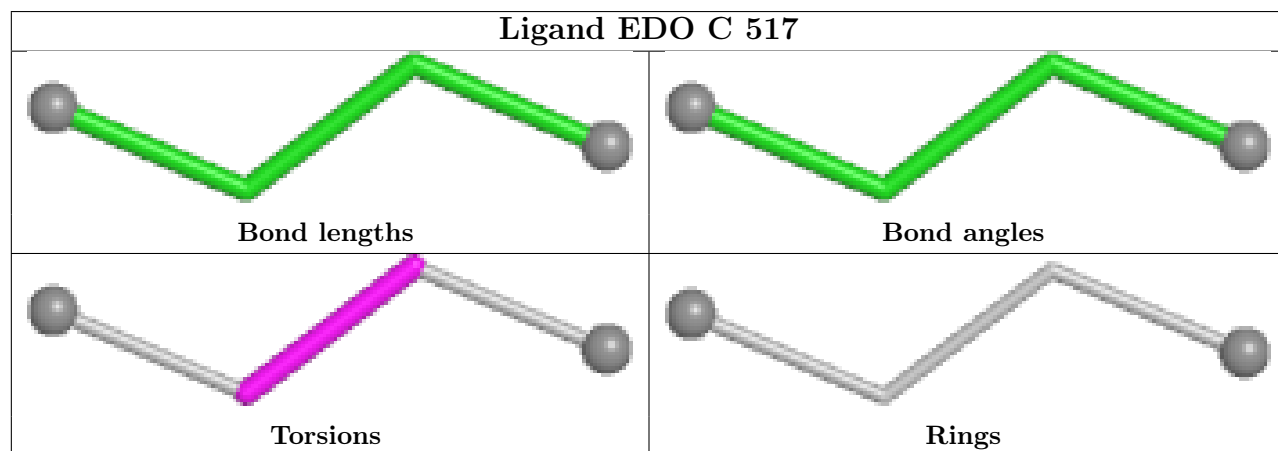
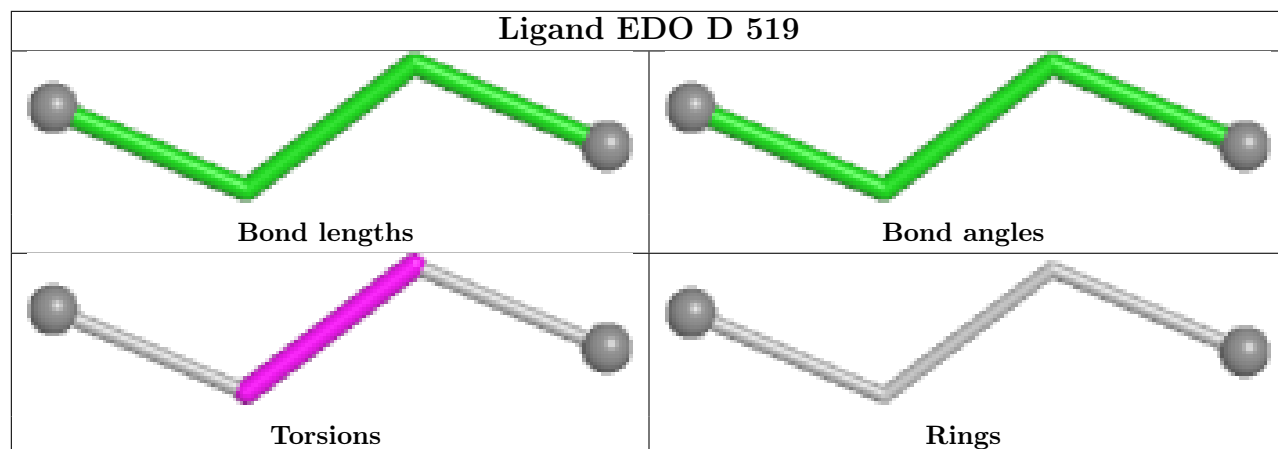


Ligand HEC D 504

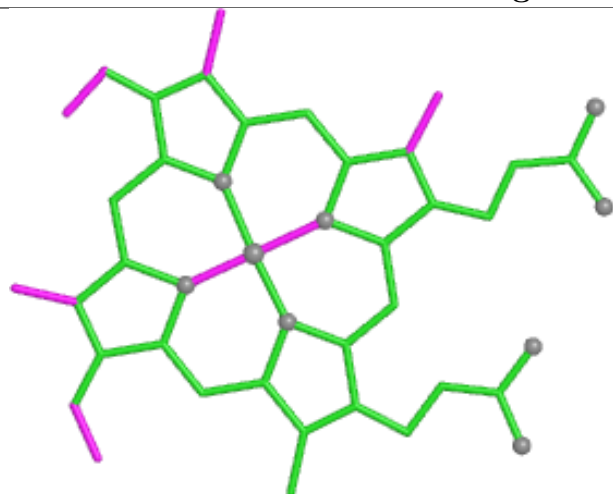


Ligand EDO B 513

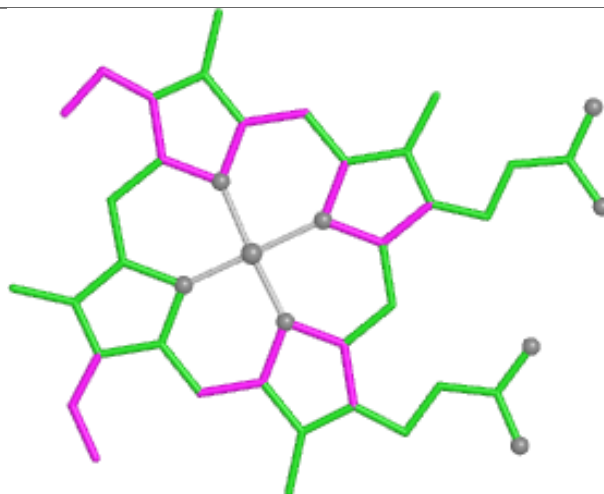




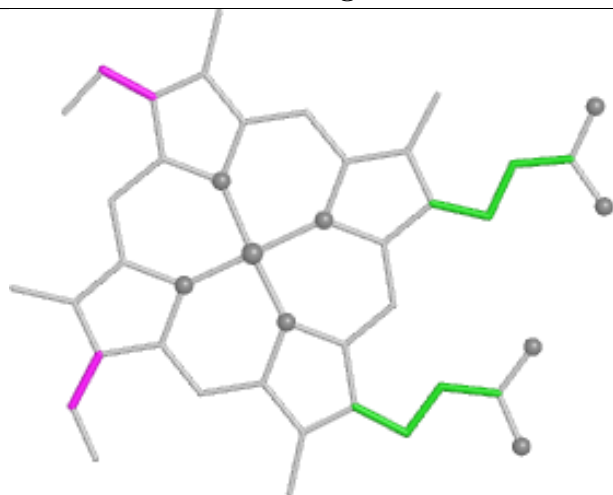
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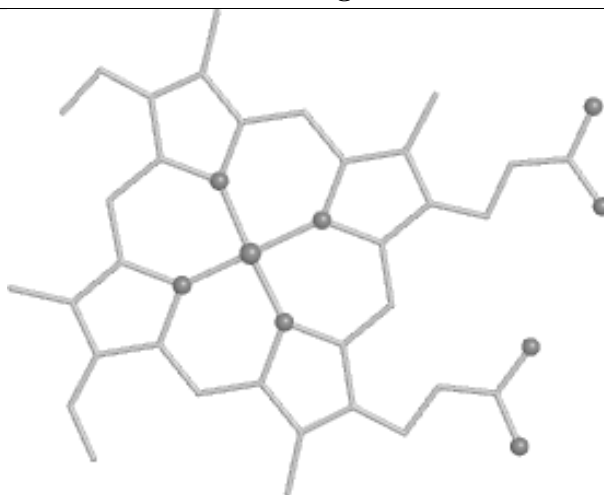
Bond lengths



Bond angles

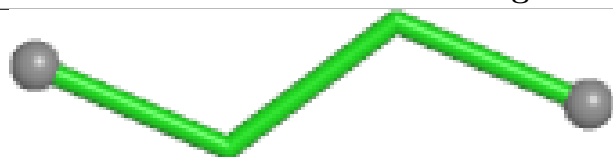


Torsions

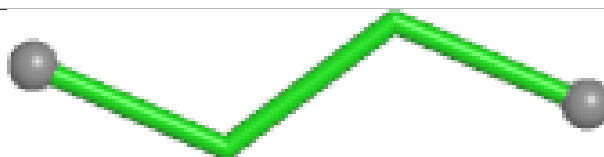


Rings

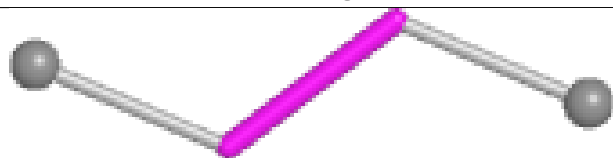
Ligand EDO D 515



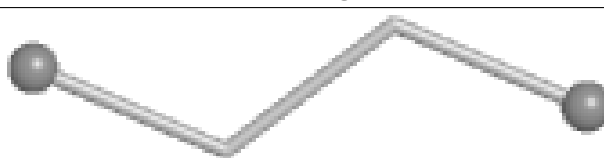
Bond lengths



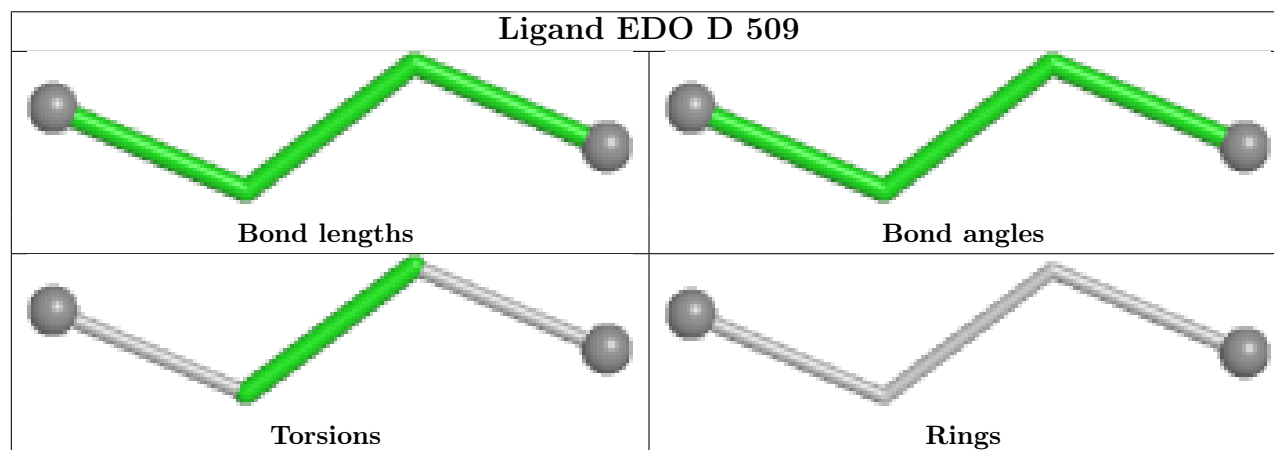
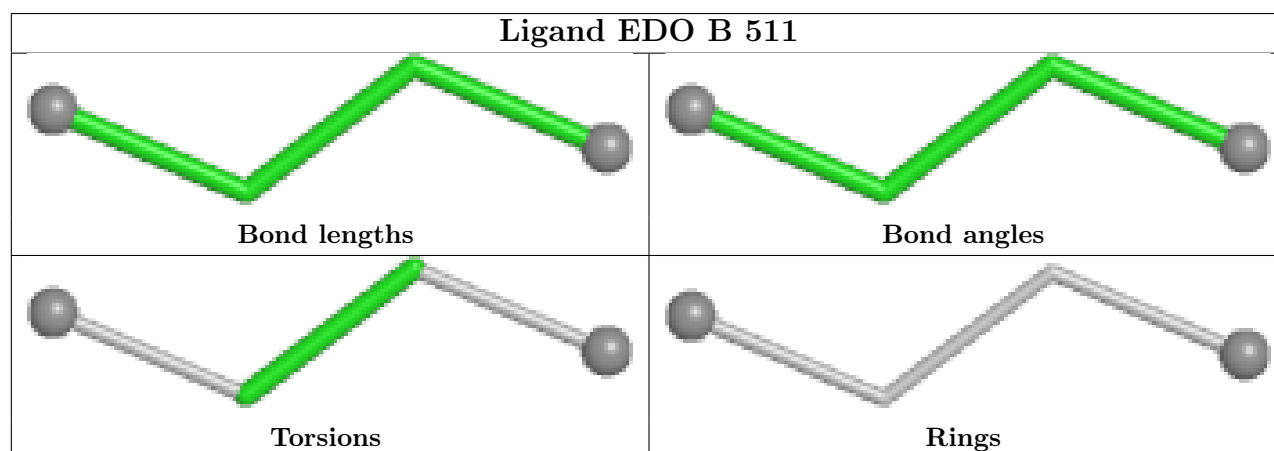
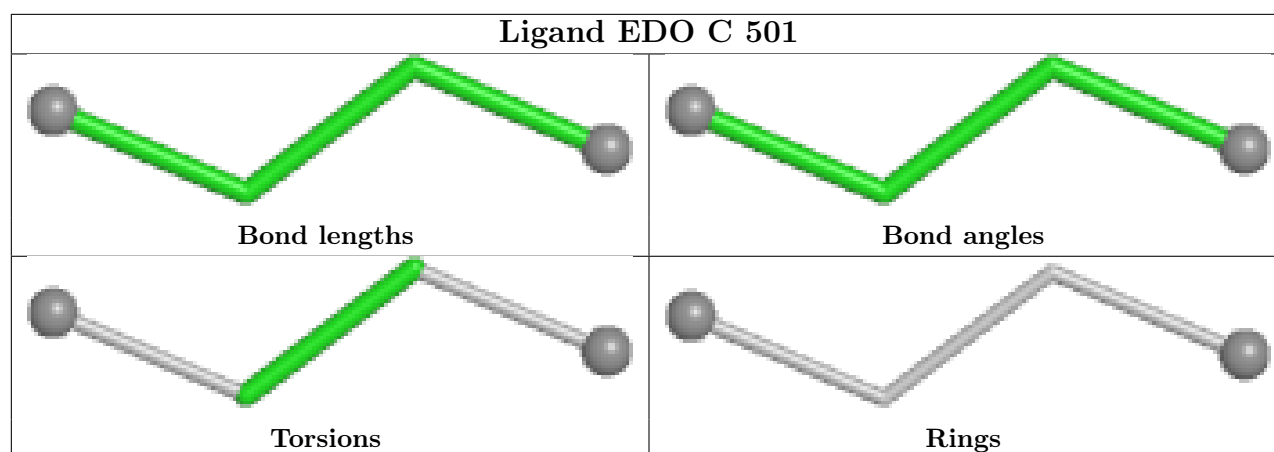
Bond angles



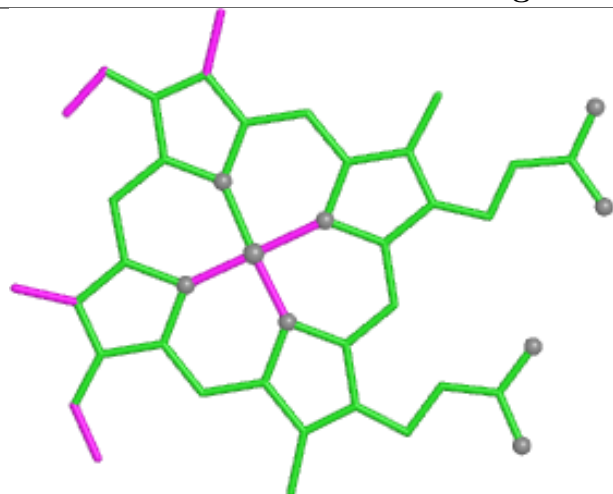
Torsions



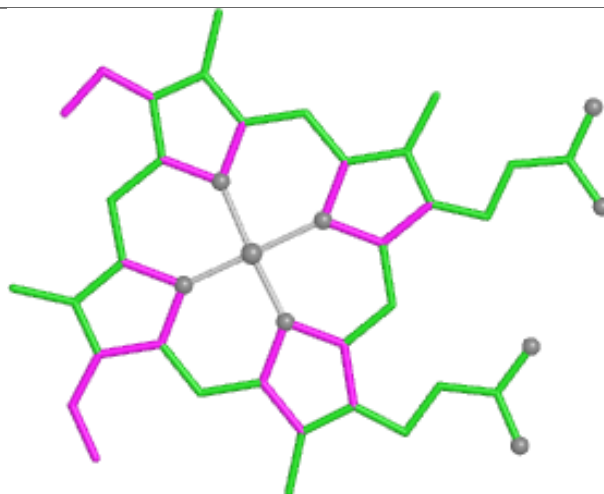
Rings



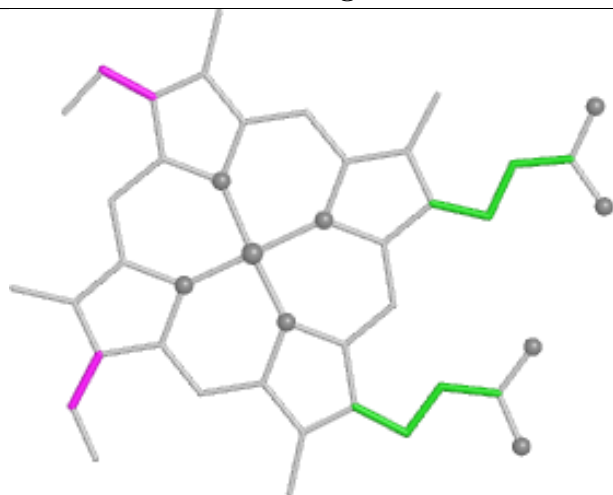
Ligand HEC C 502



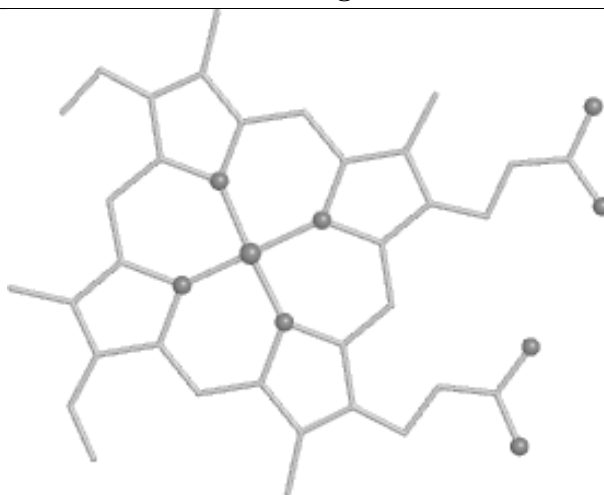
Bond lengths



Bond angles

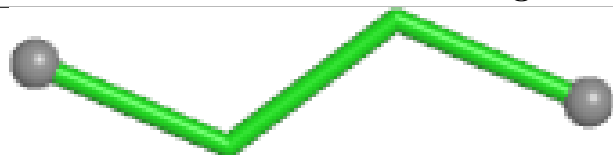


Torsions

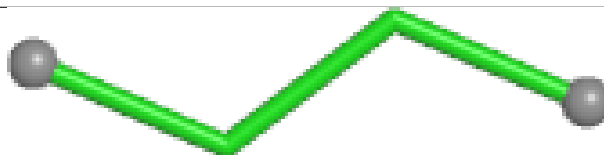


Rings

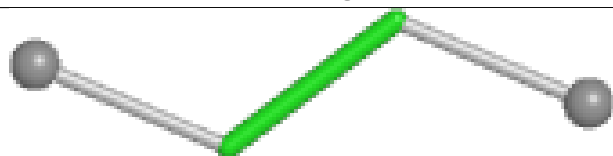
Ligand EDO B 521



Bond lengths



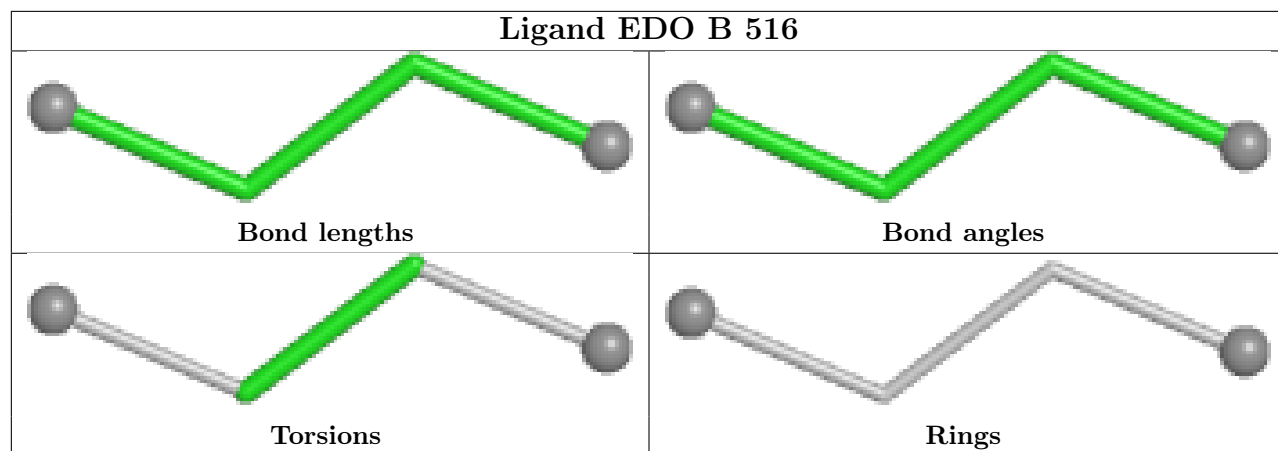
Bond angles

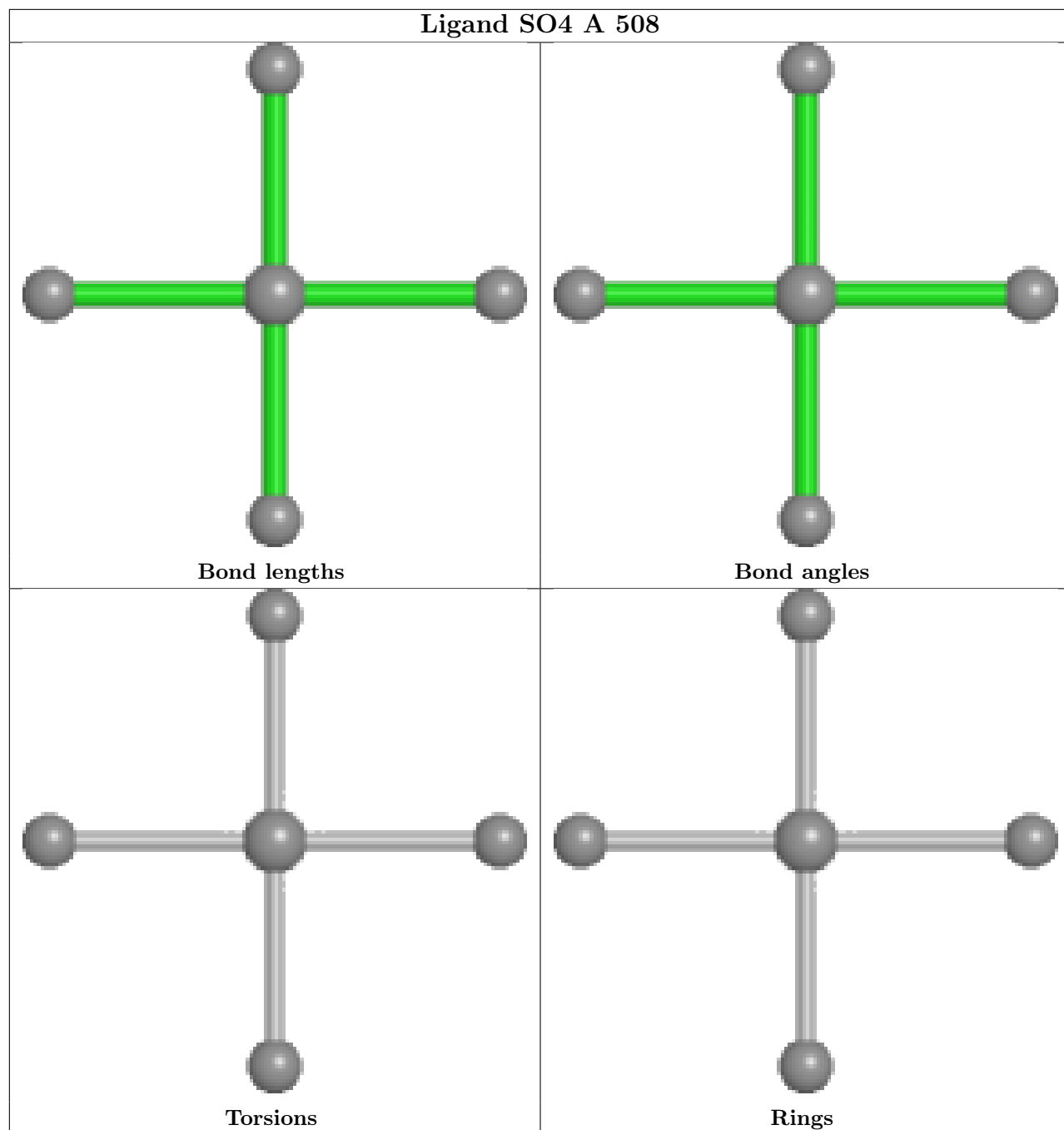


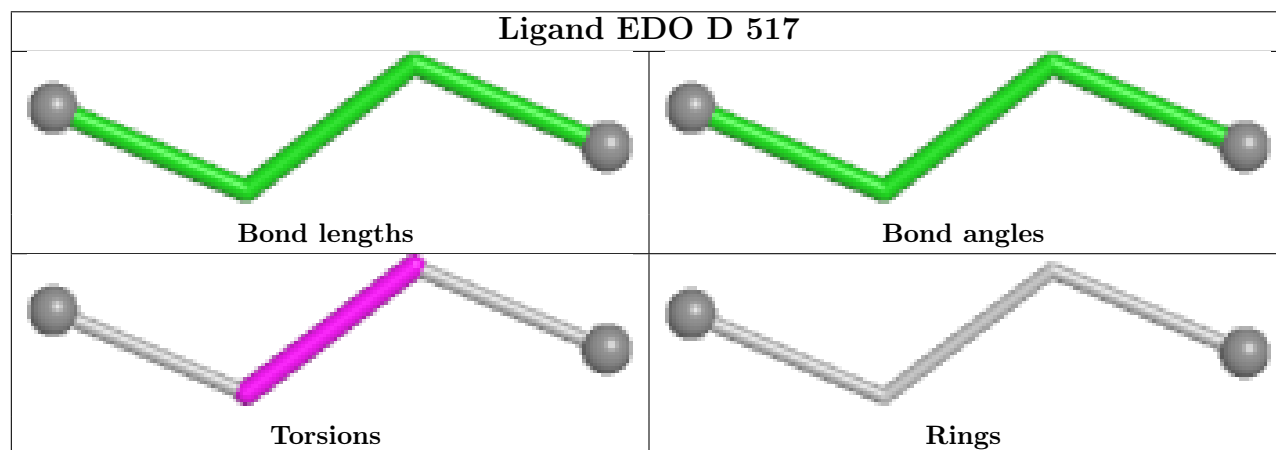
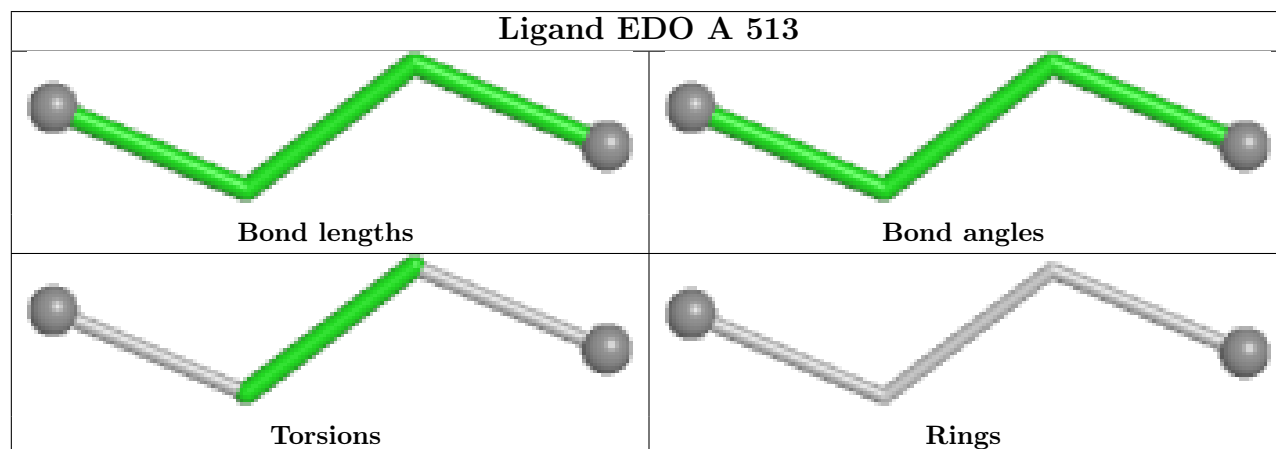
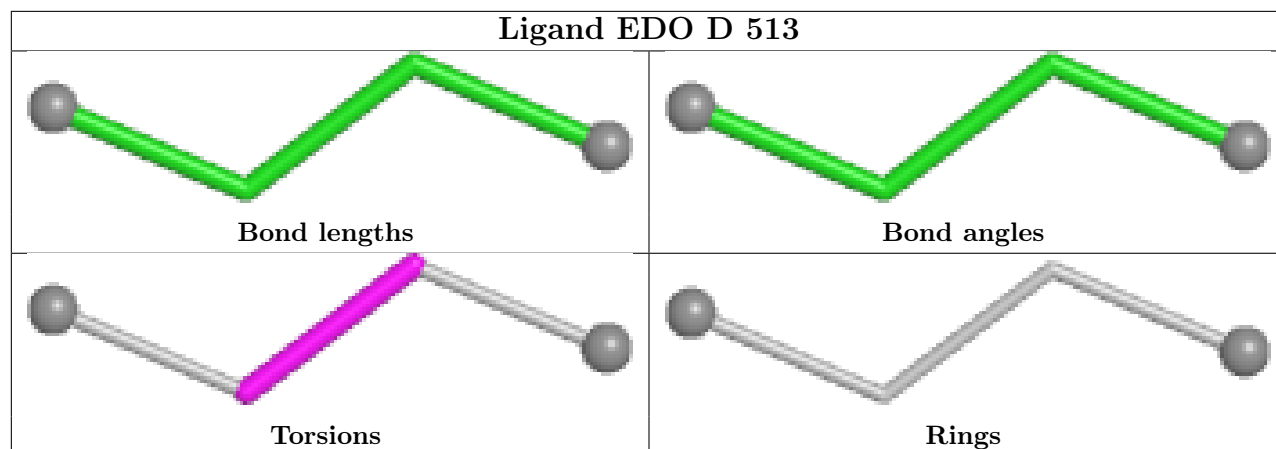
Torsions

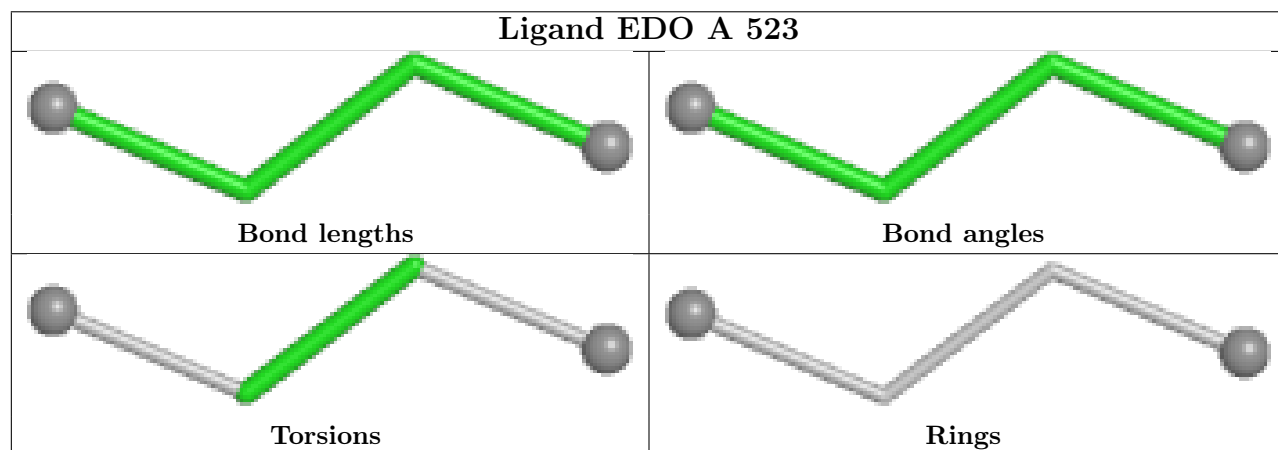
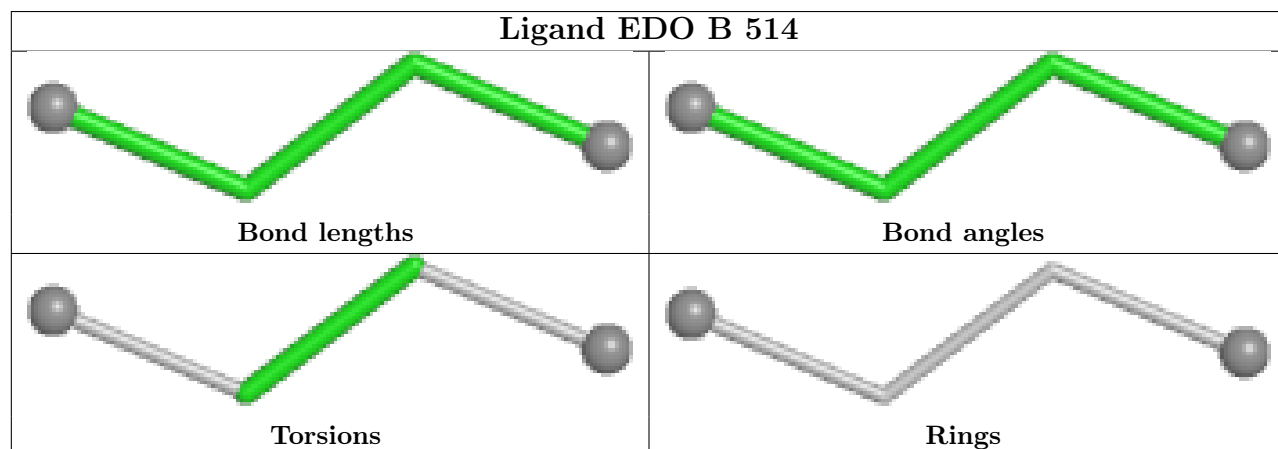
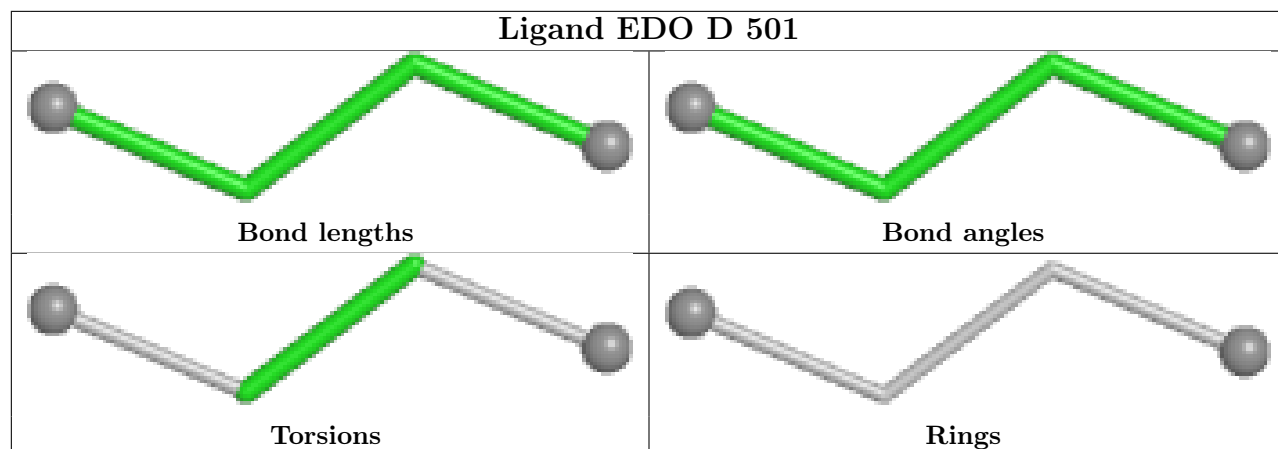


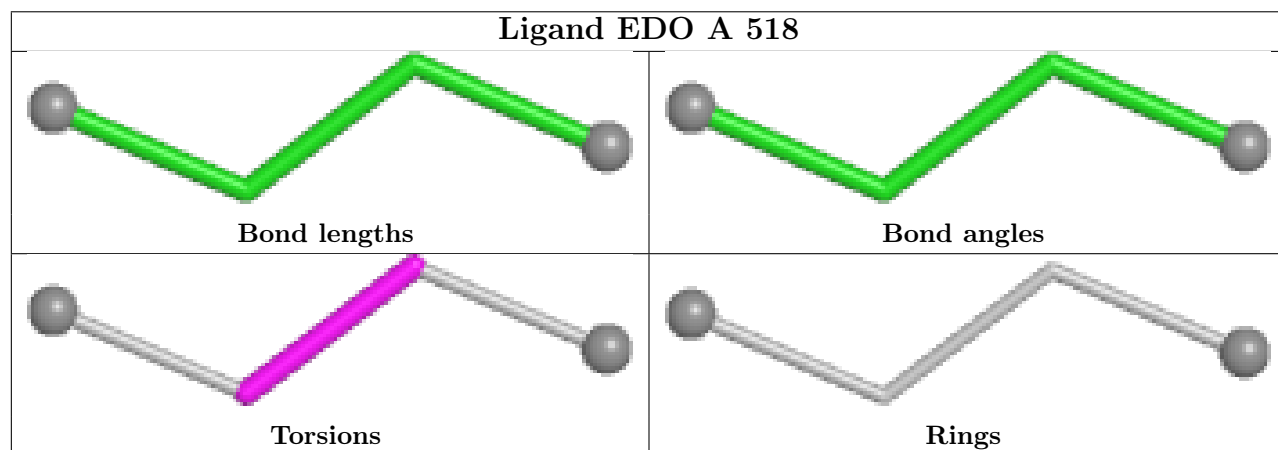
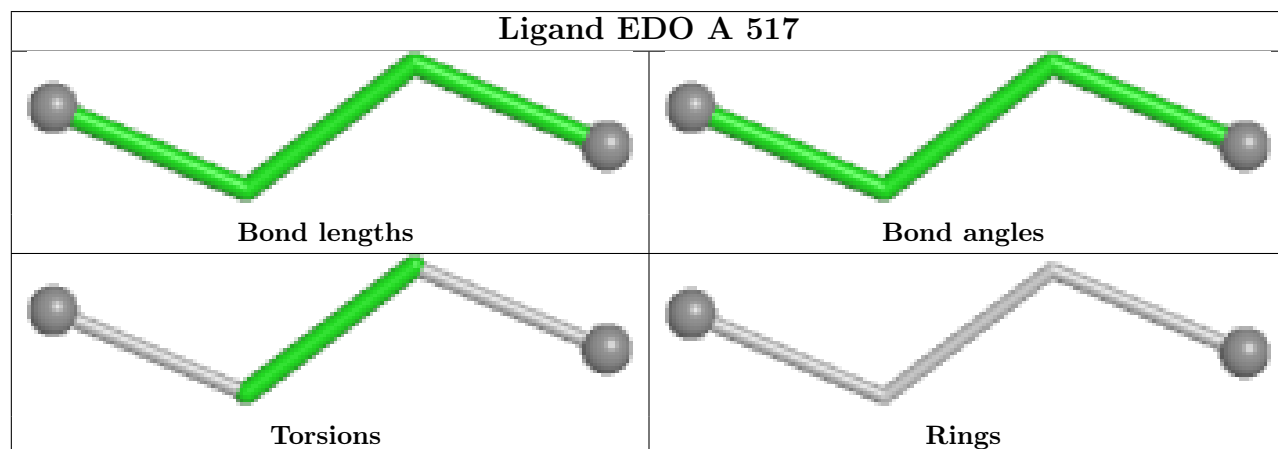
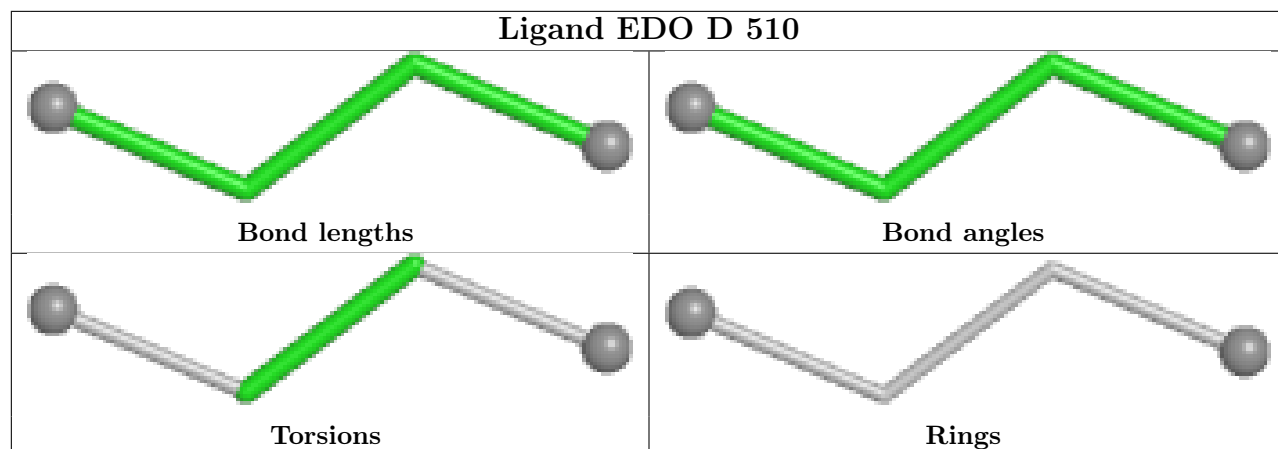
Rings

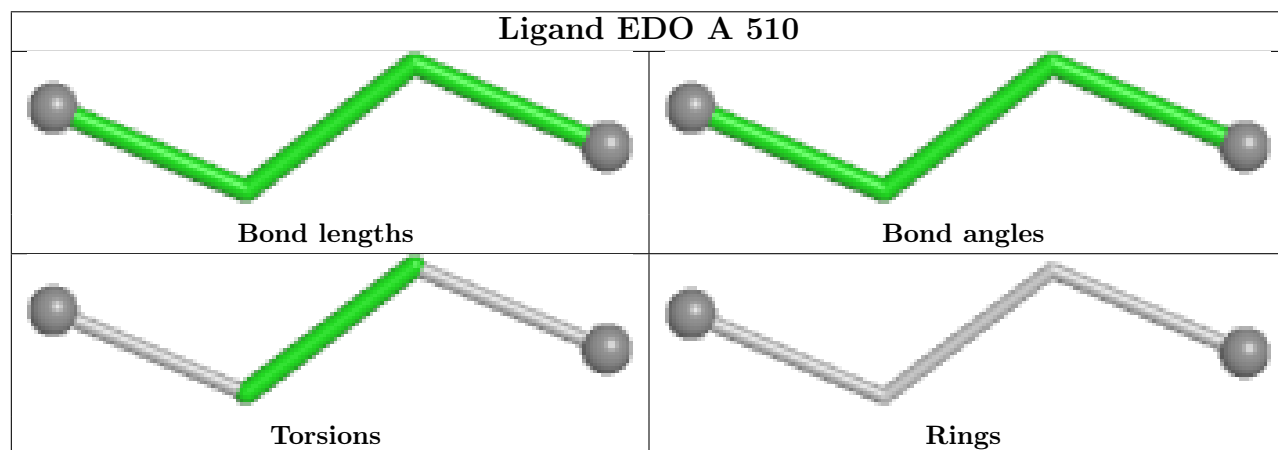
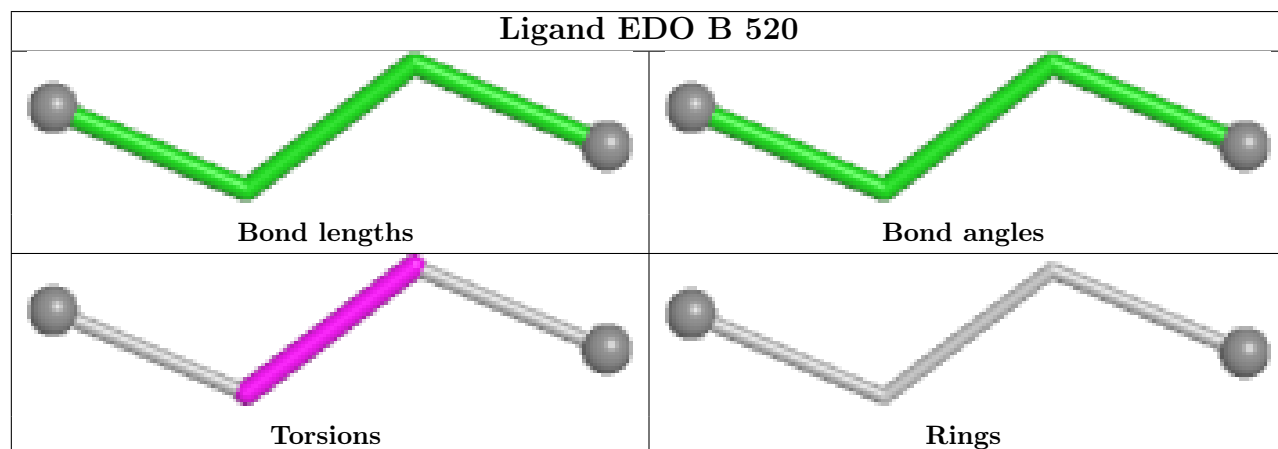
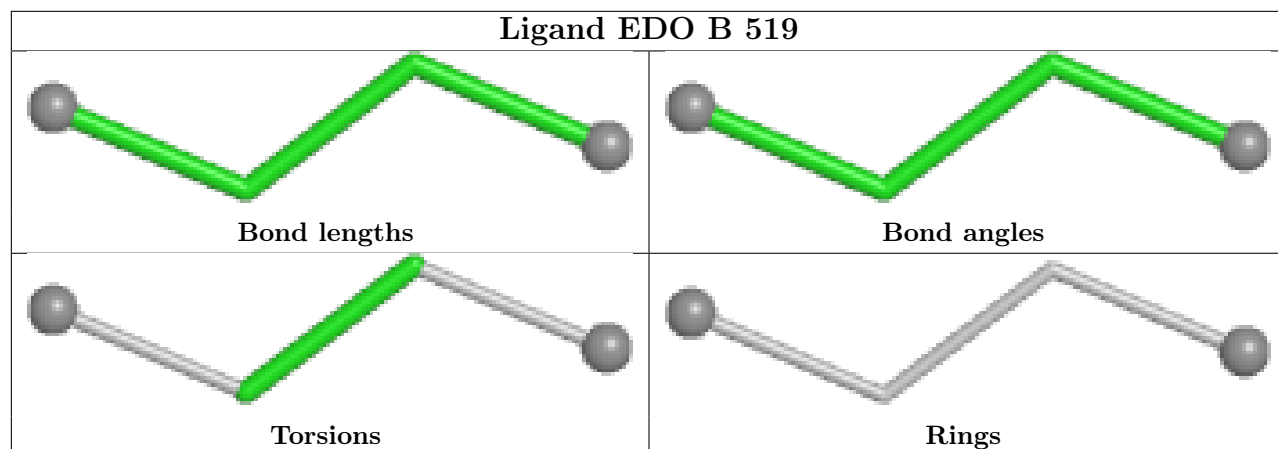


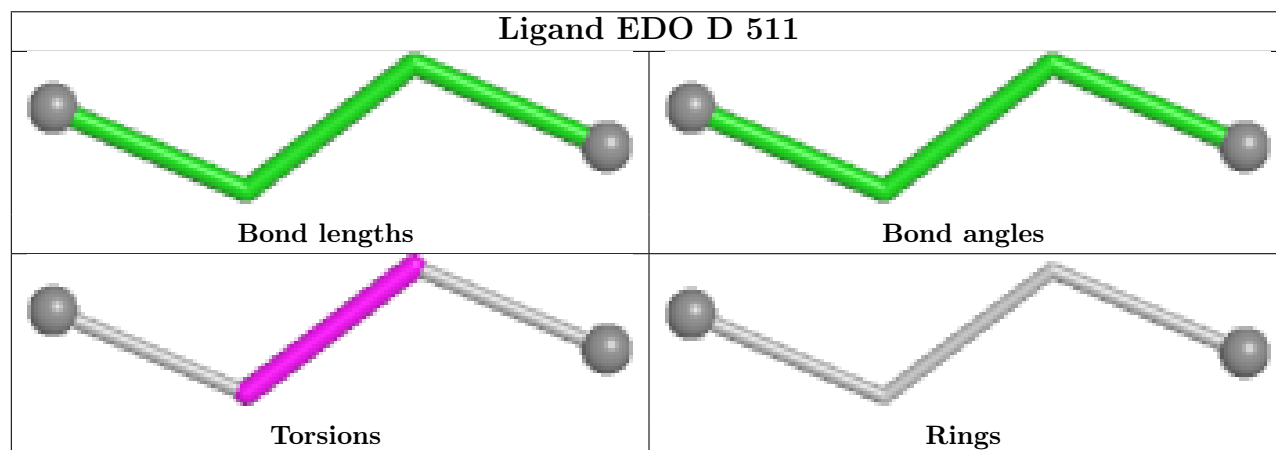
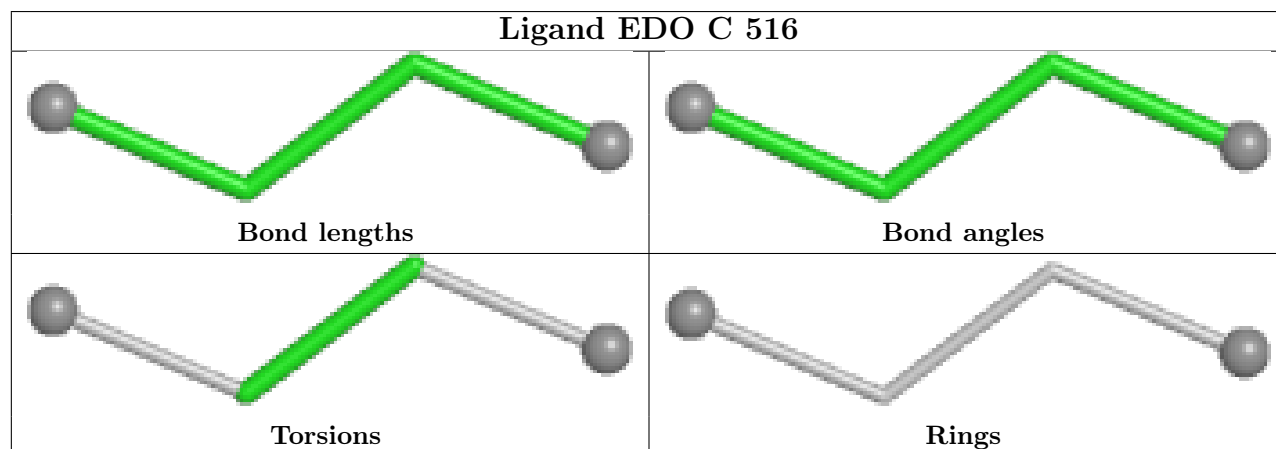
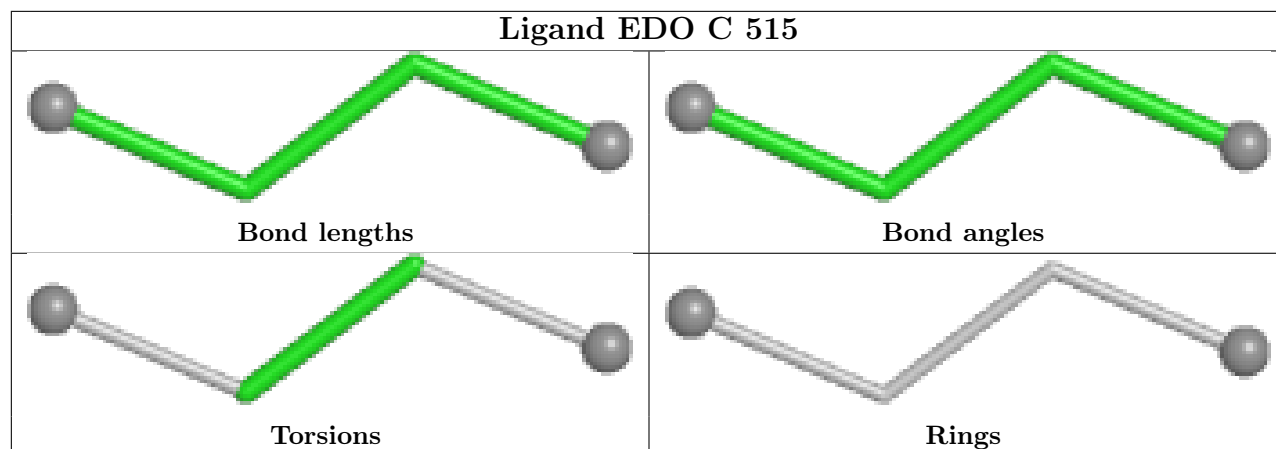


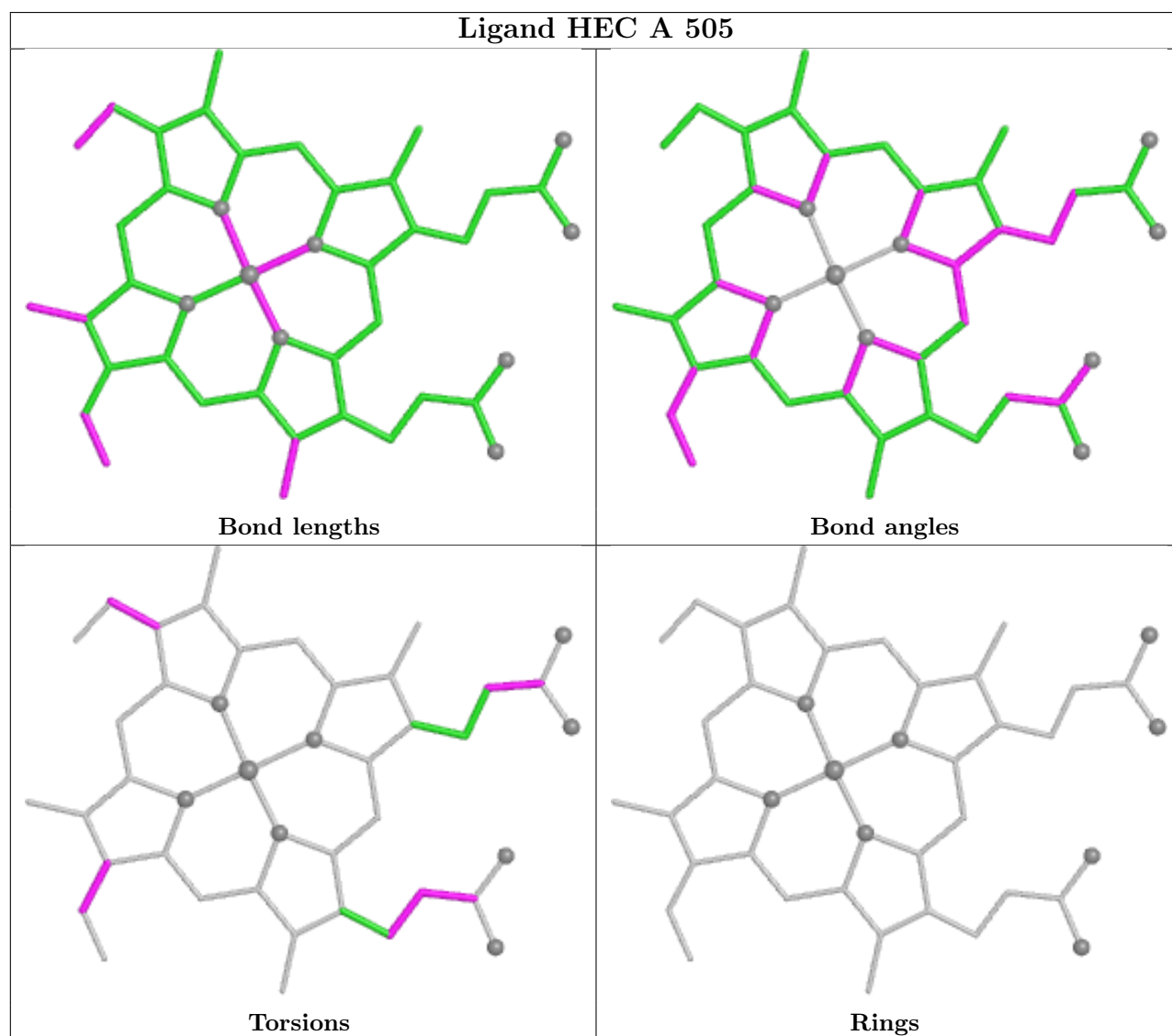
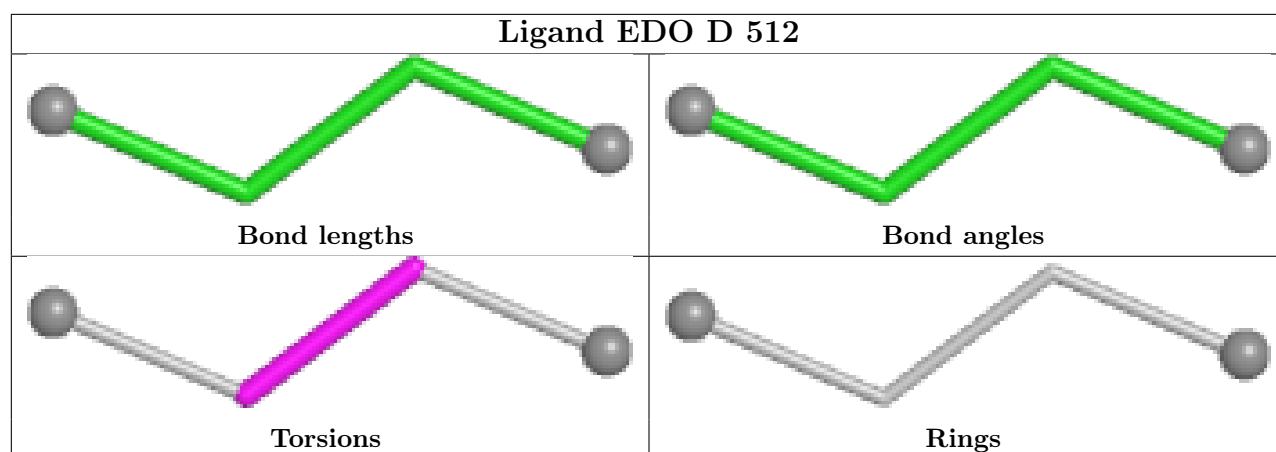


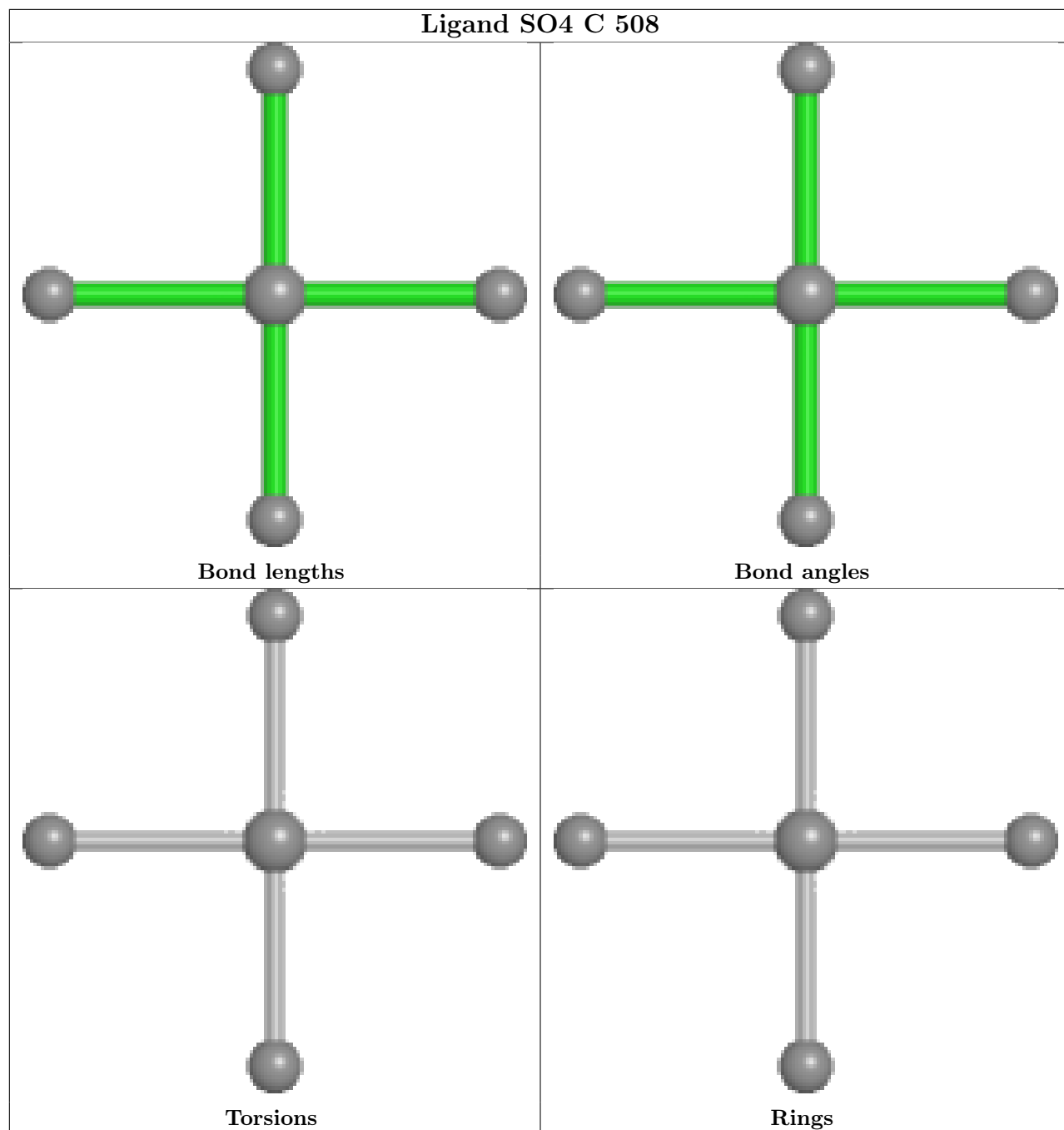


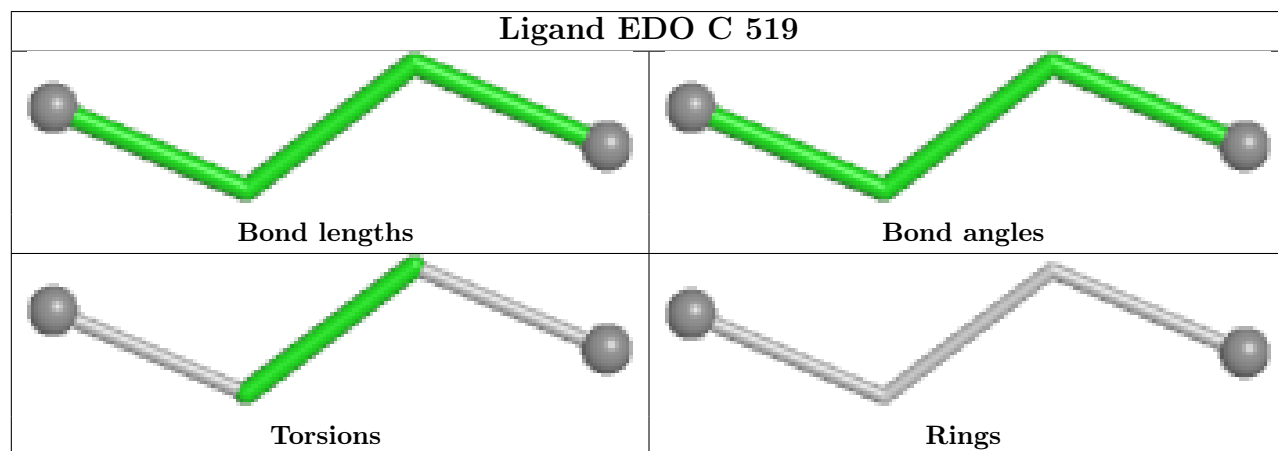
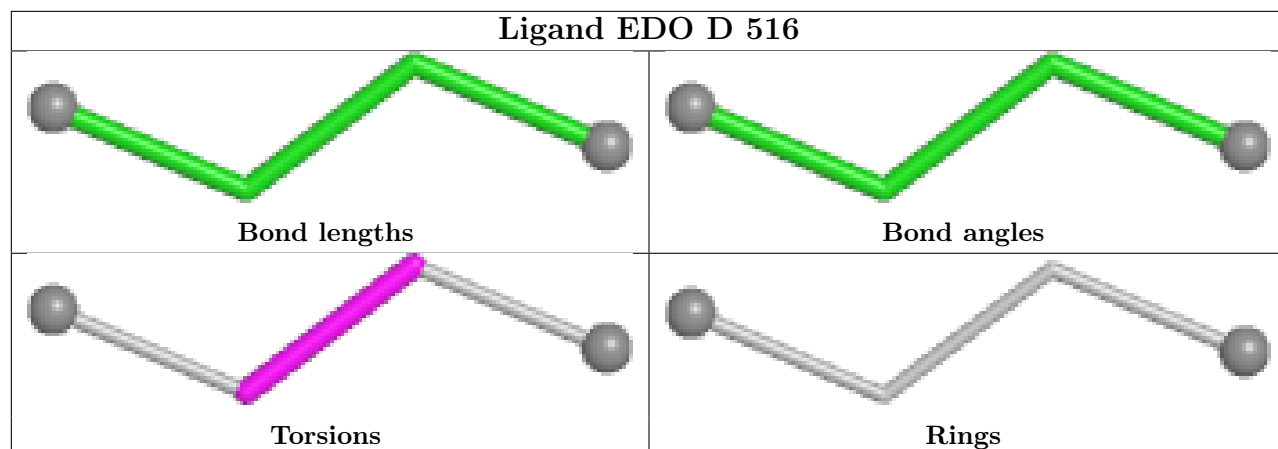


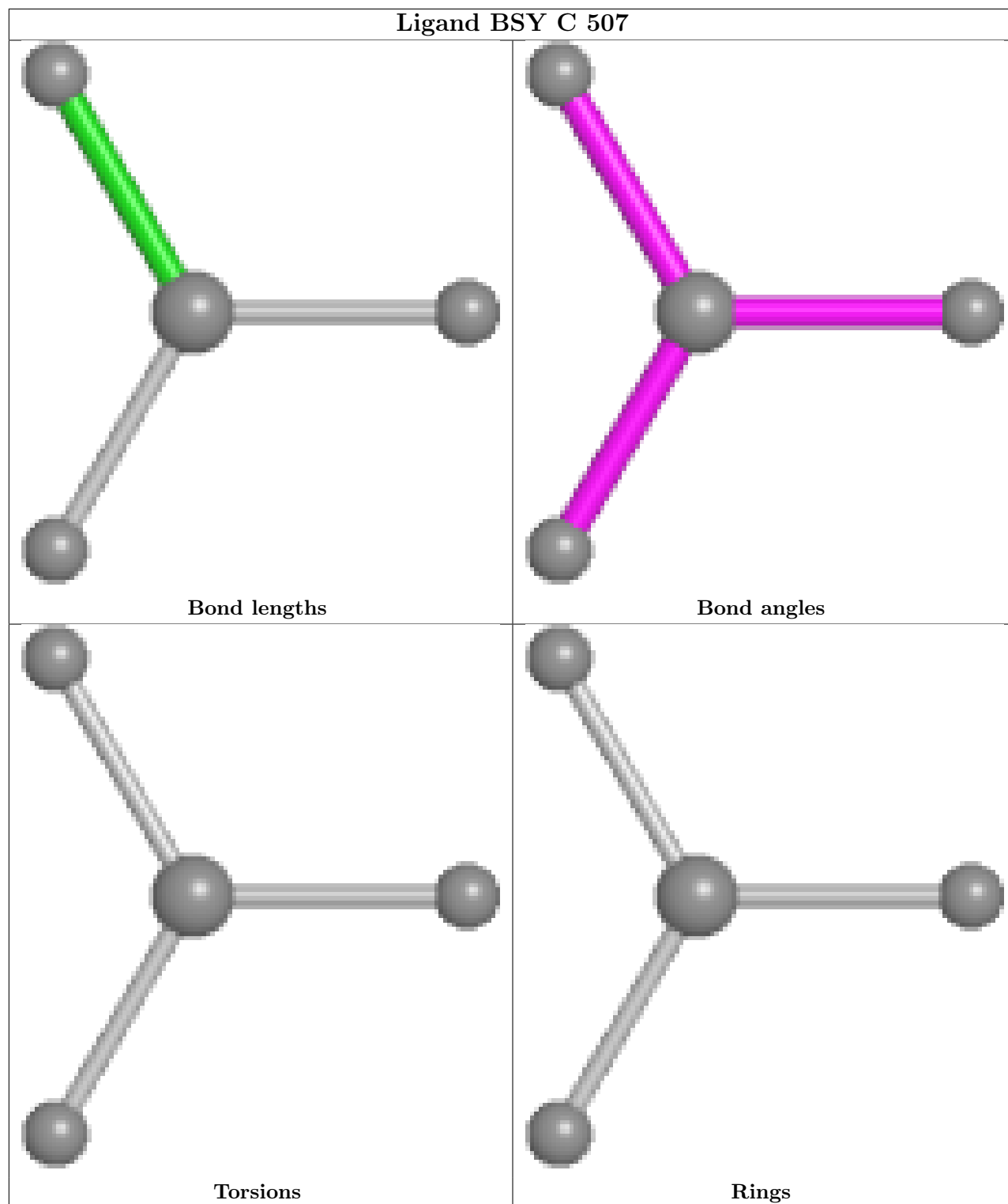


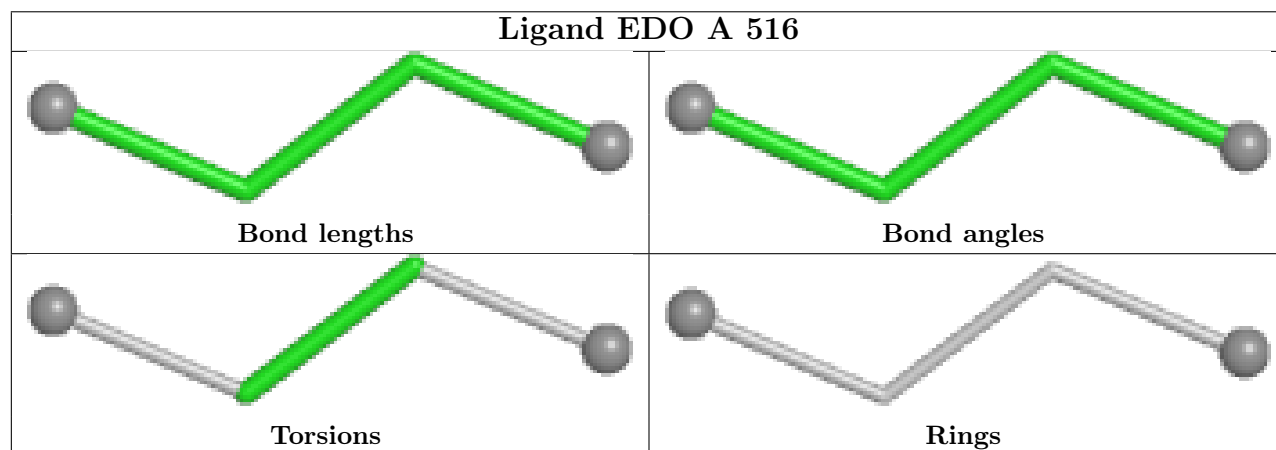
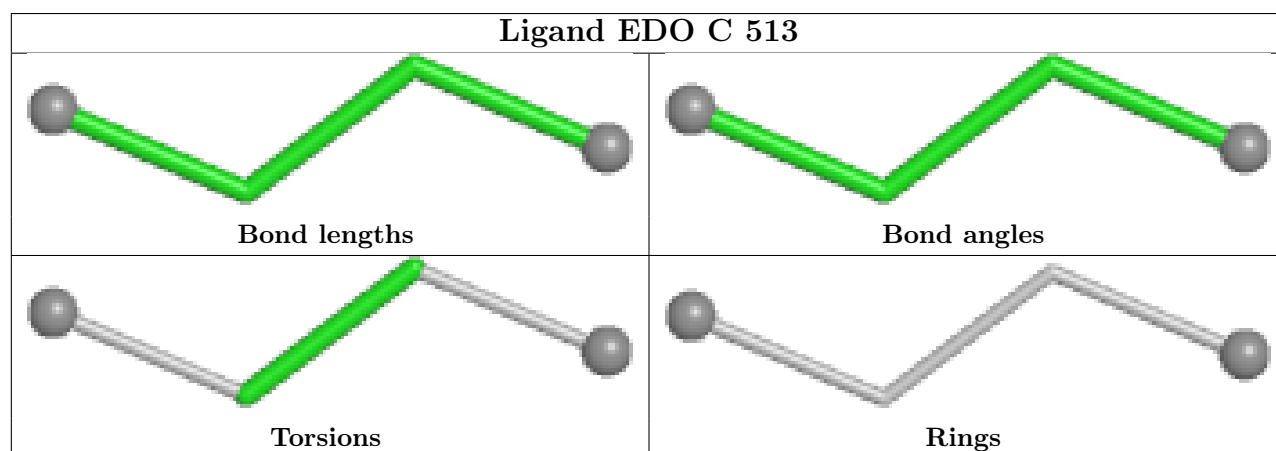
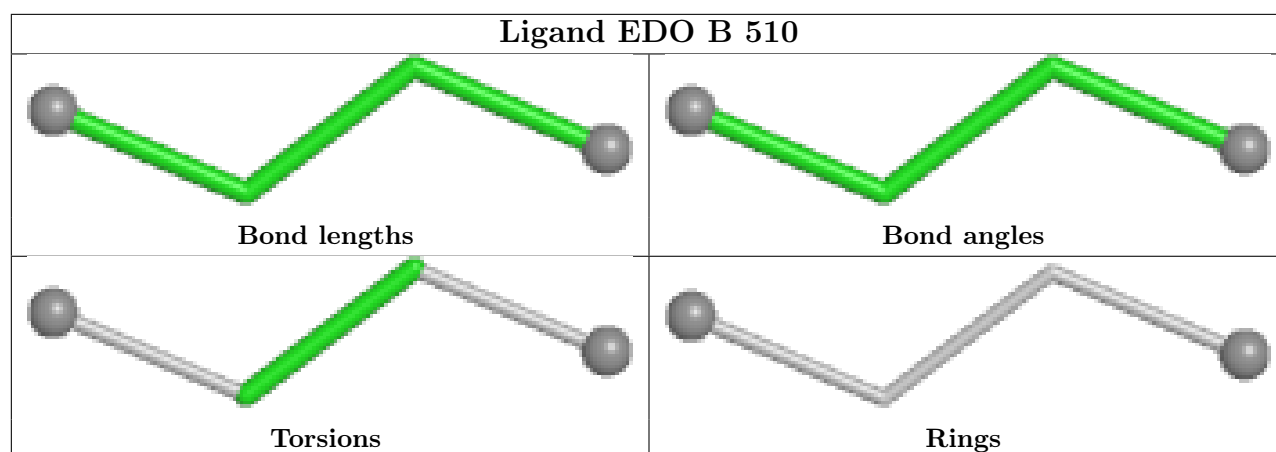


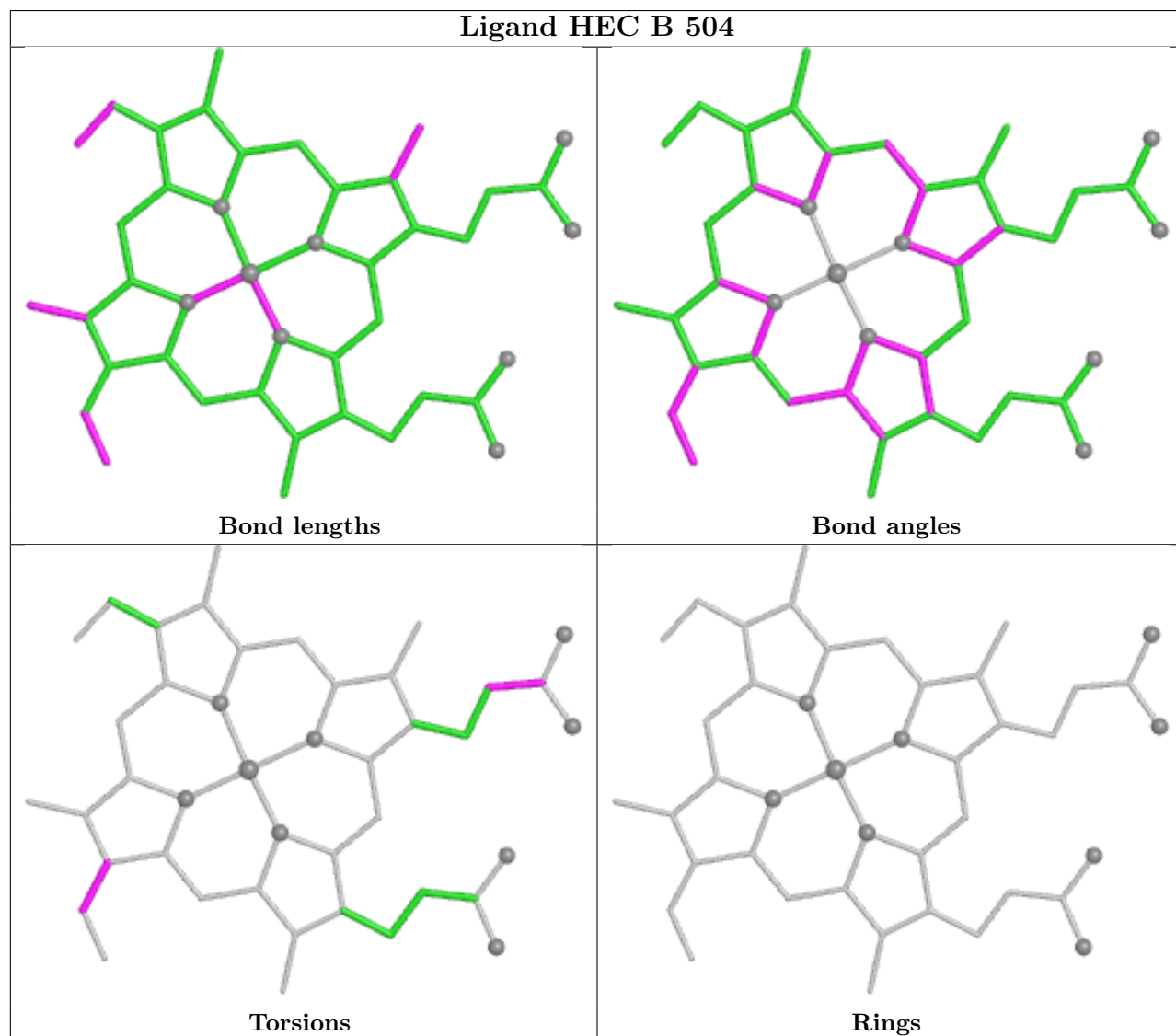
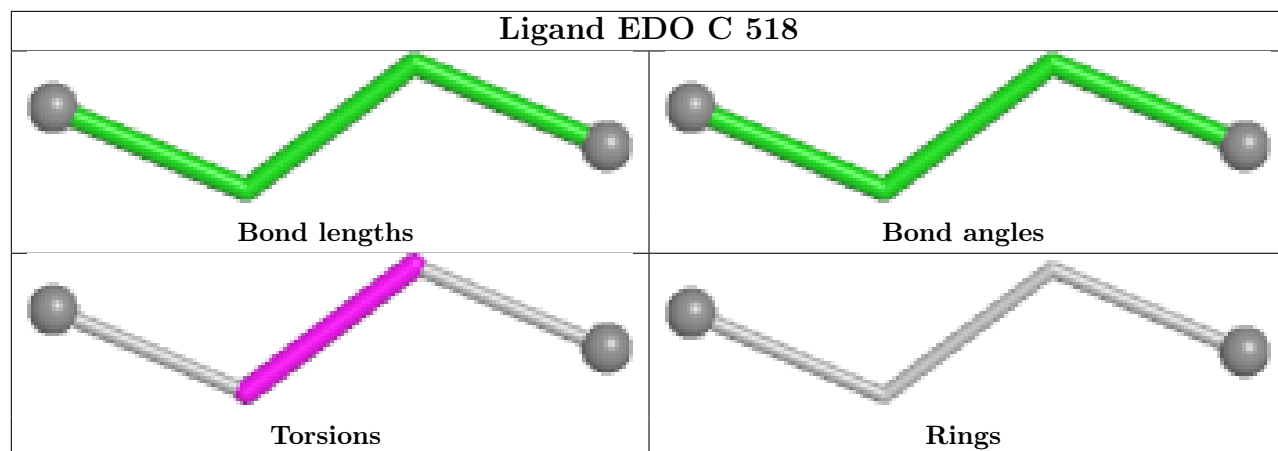




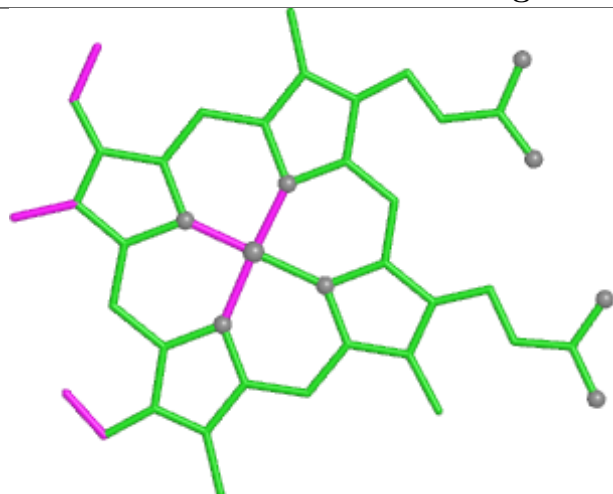




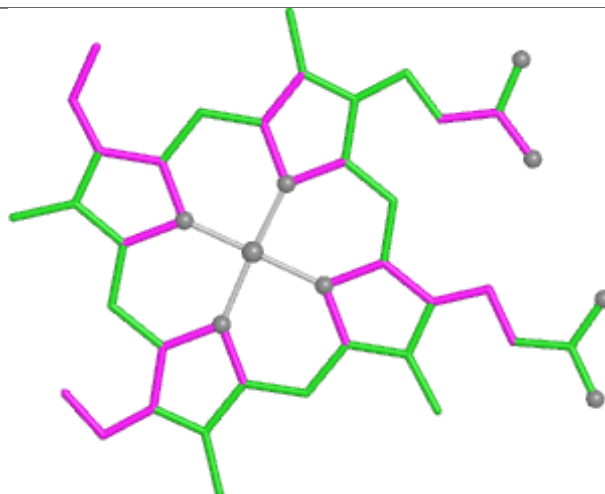




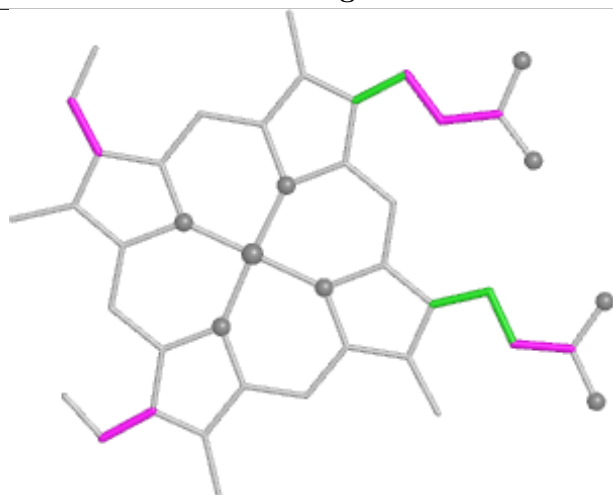
Ligand HEC C 506



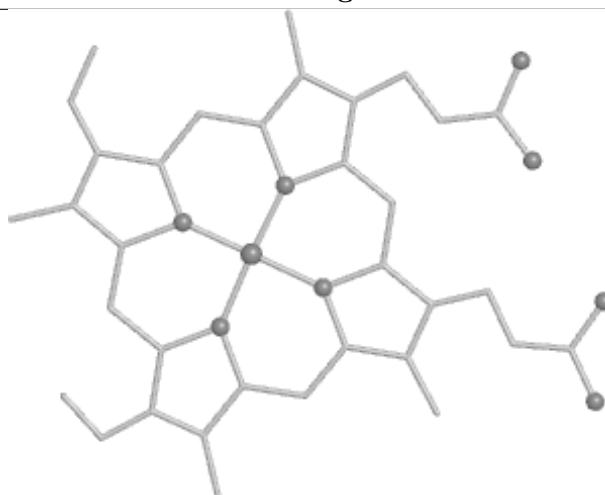
Bond lengths



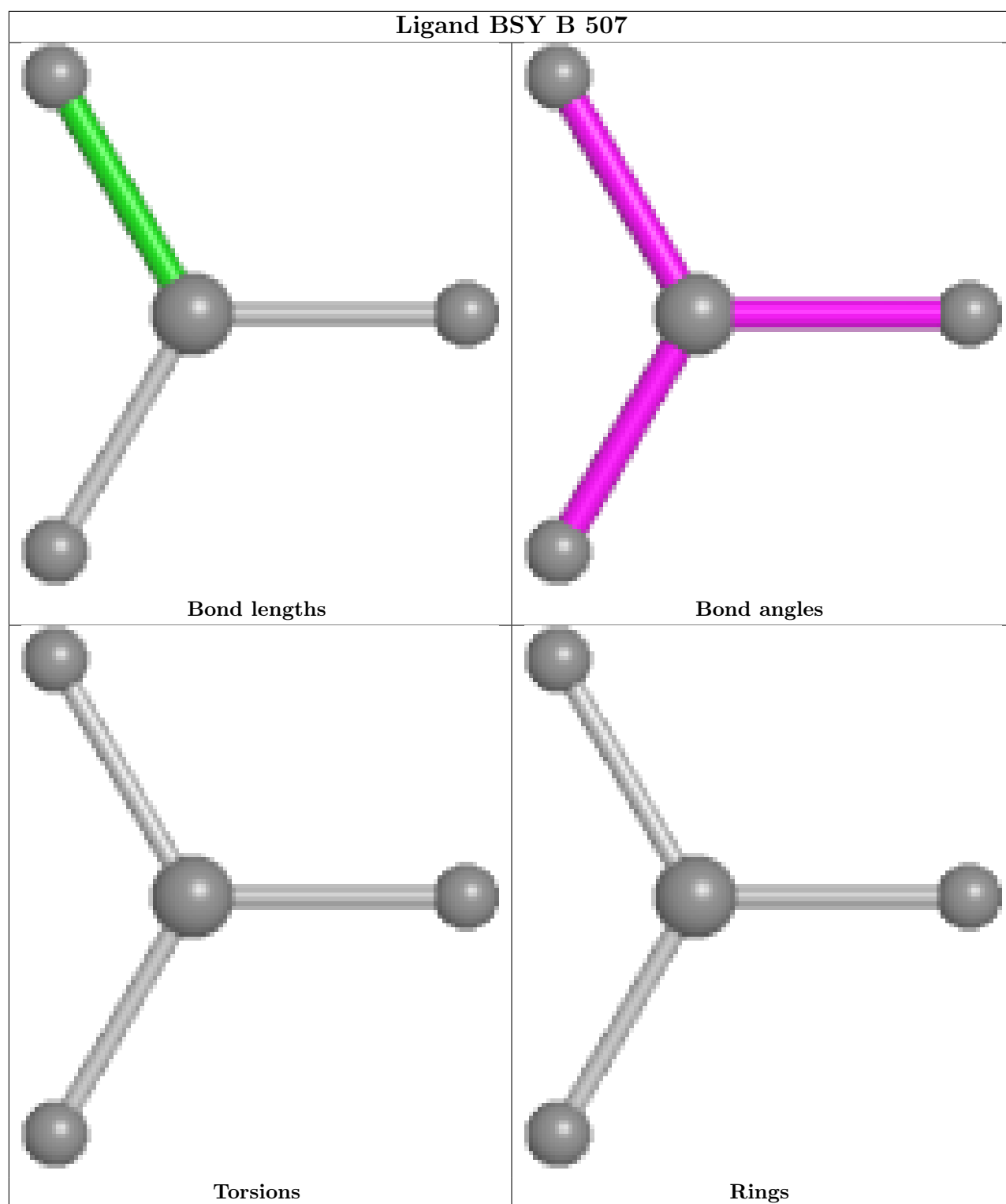
Bond angles

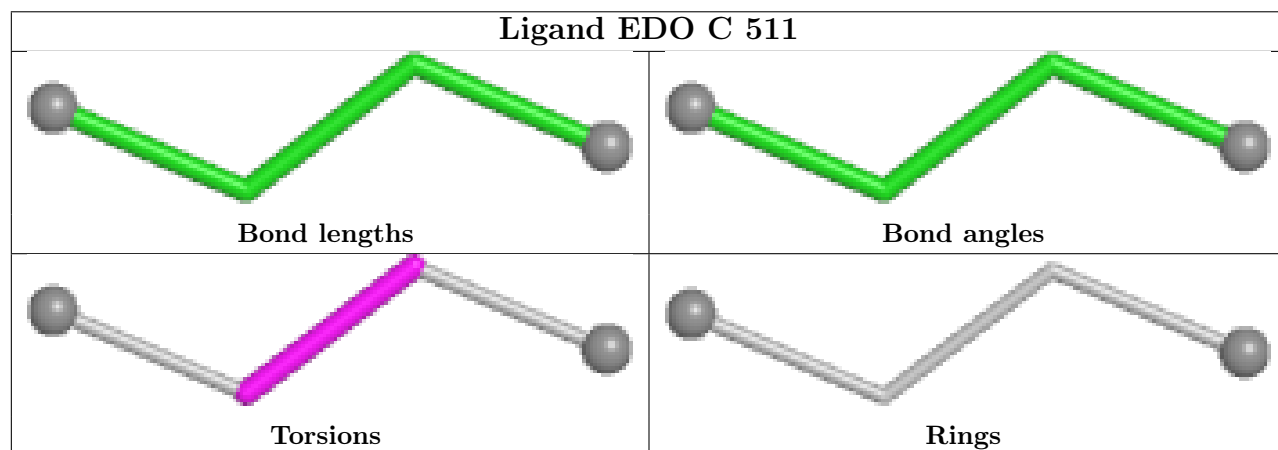
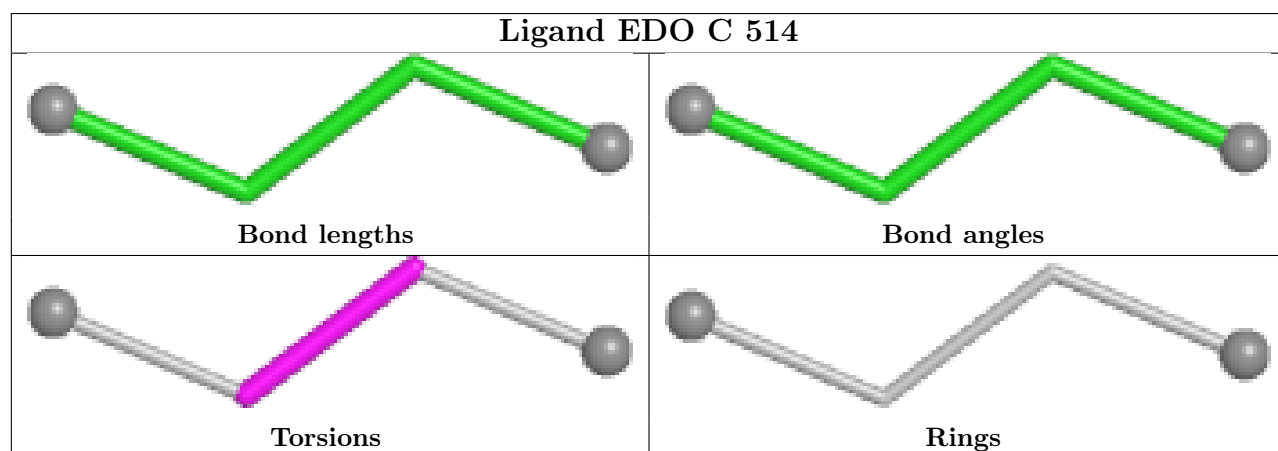
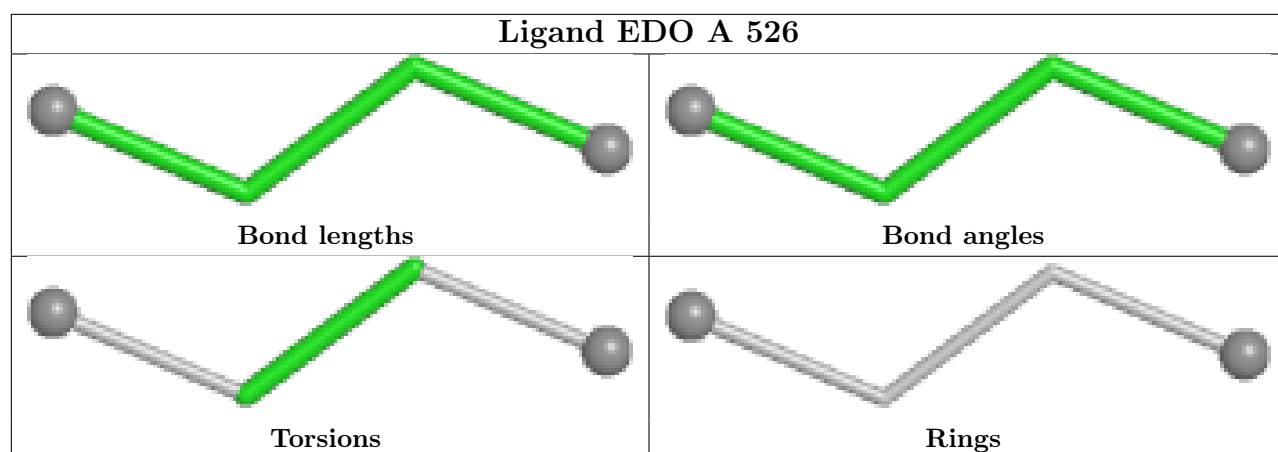


Torsions

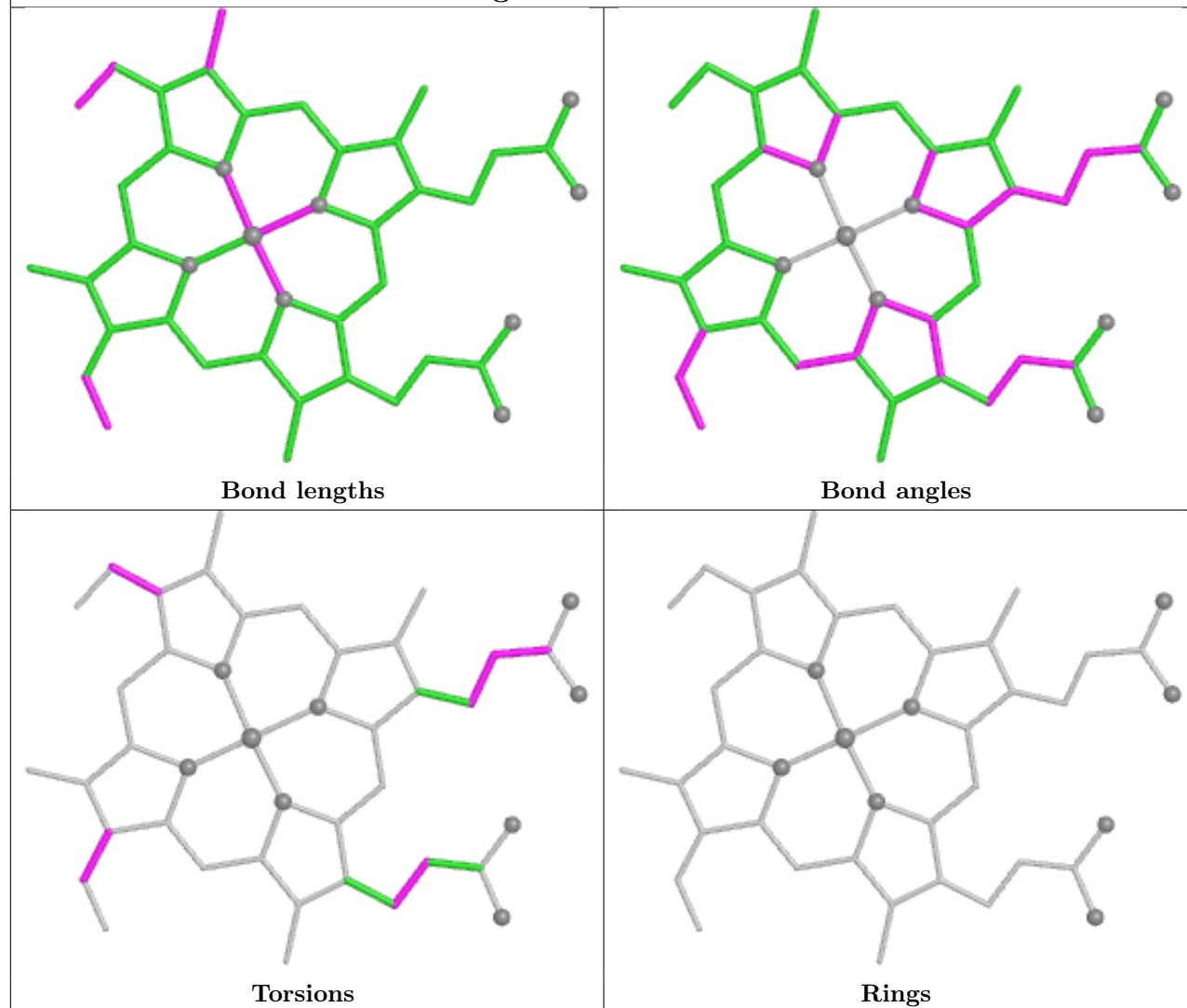


Rings

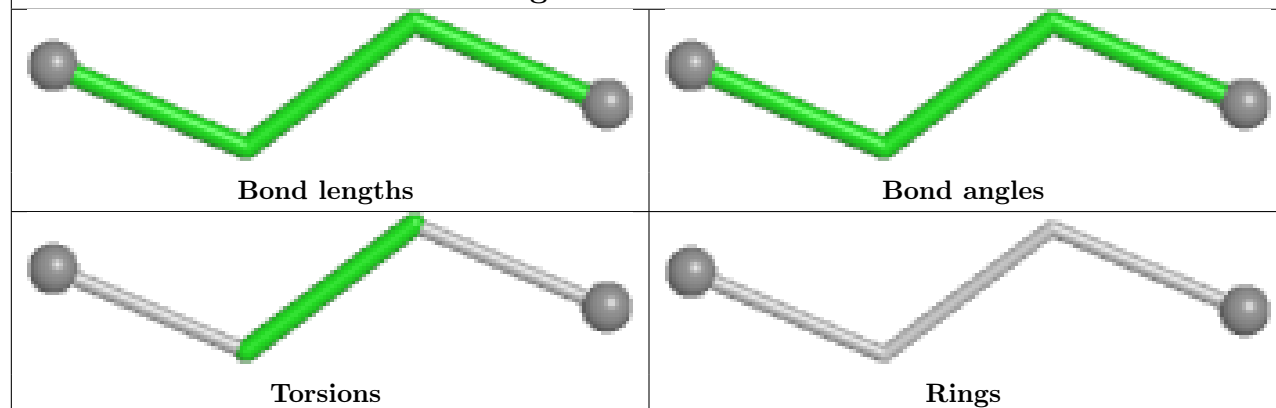


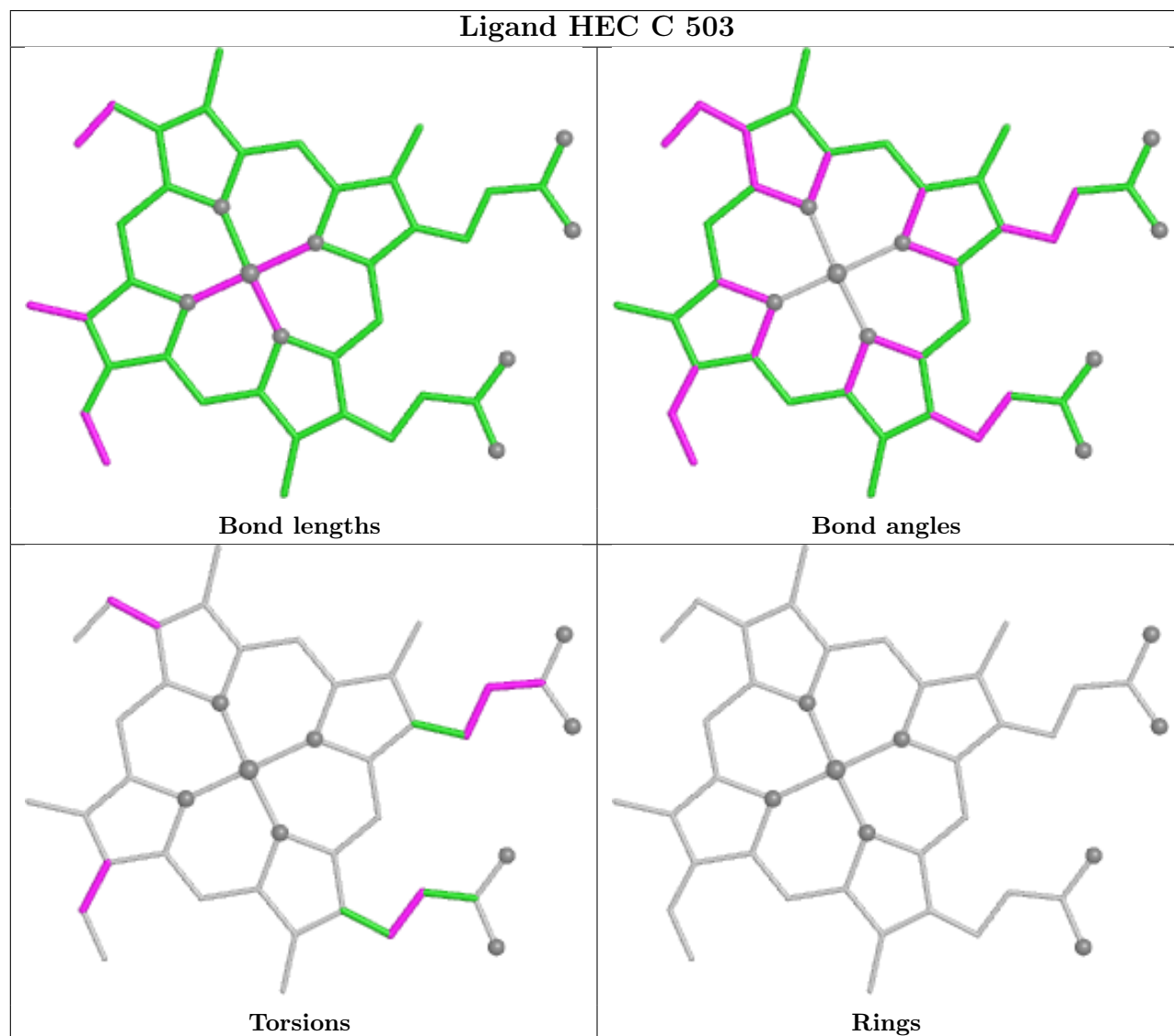
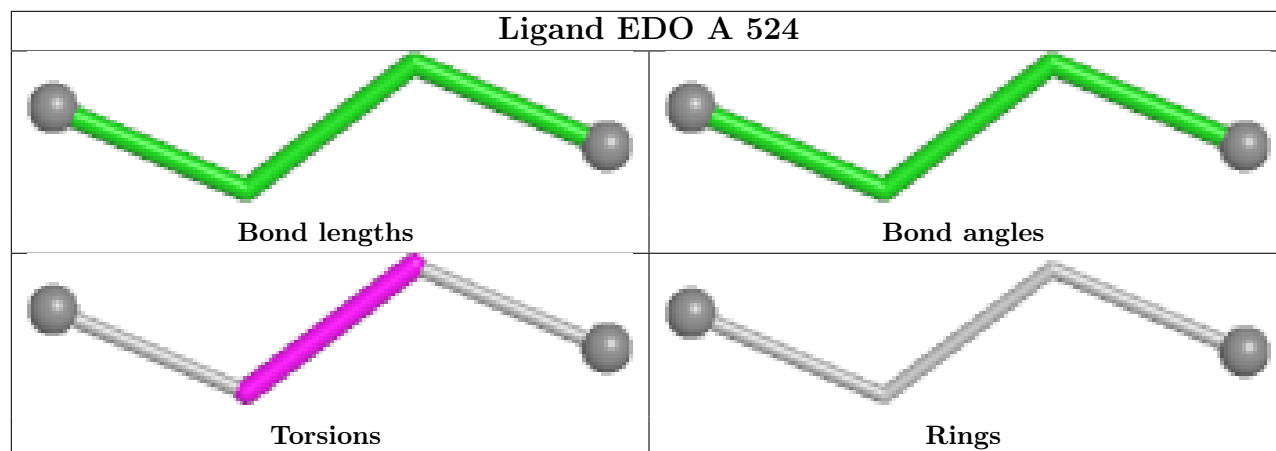


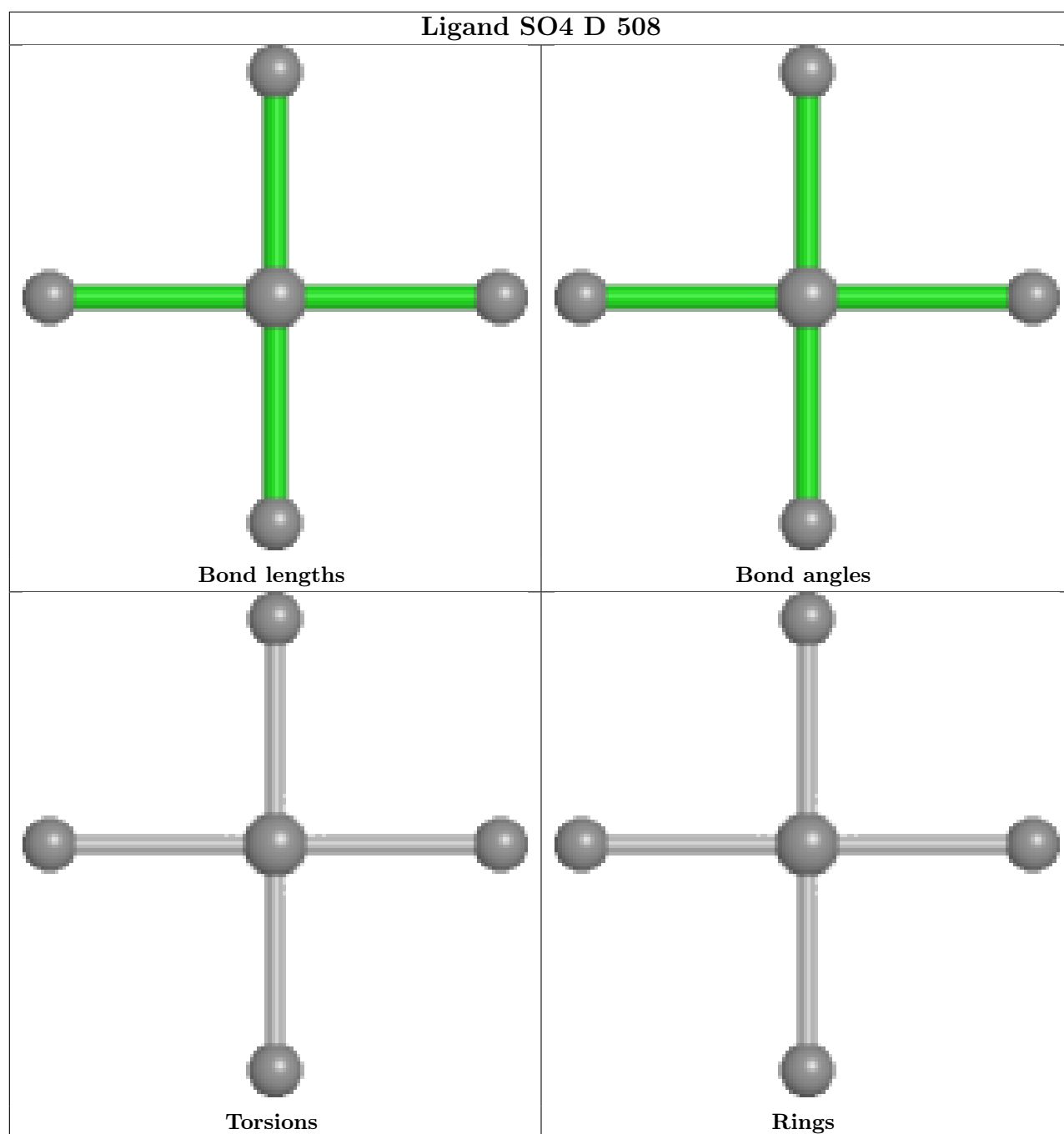
Ligand HEC D 503



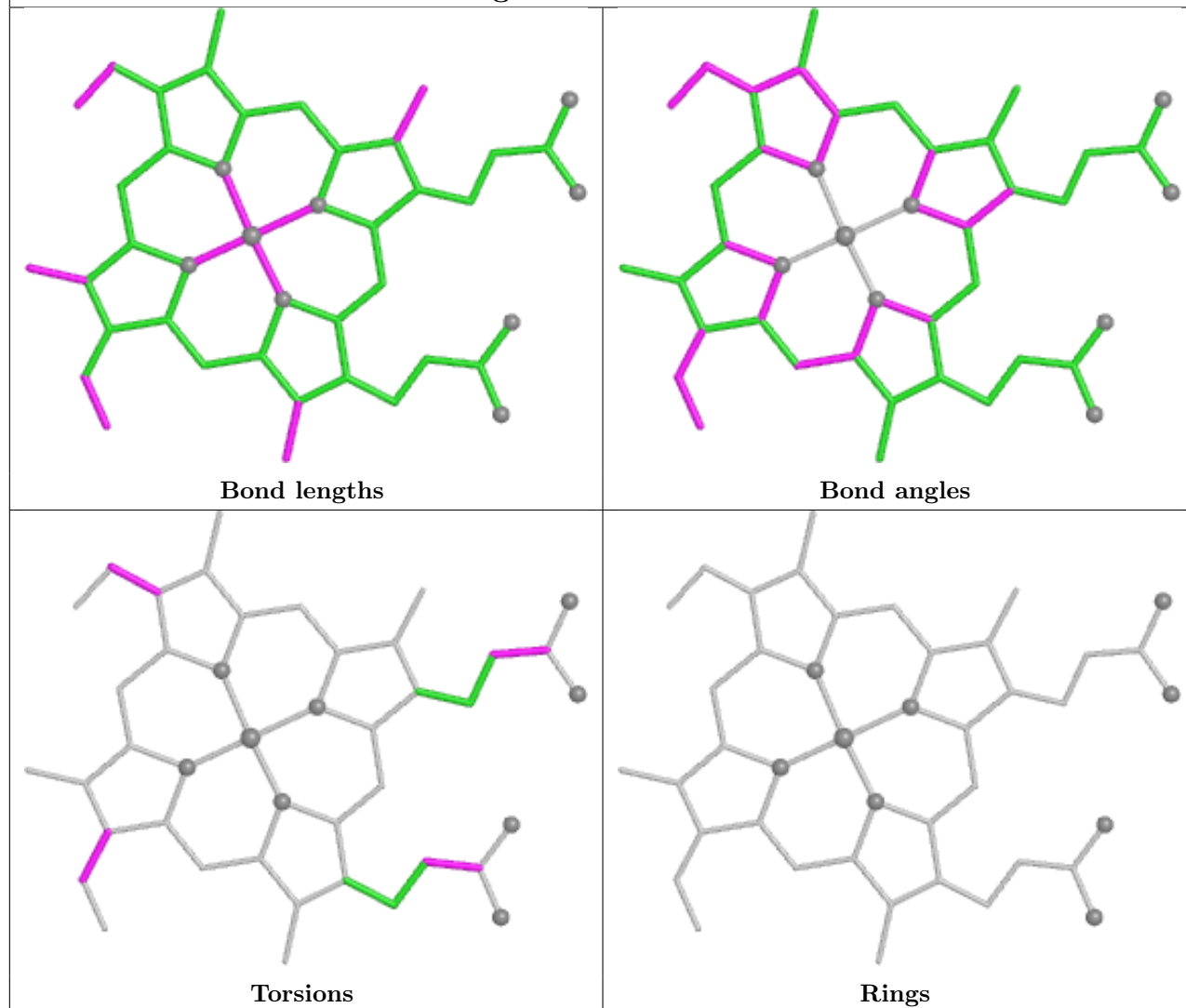
Ligand EDO A 512



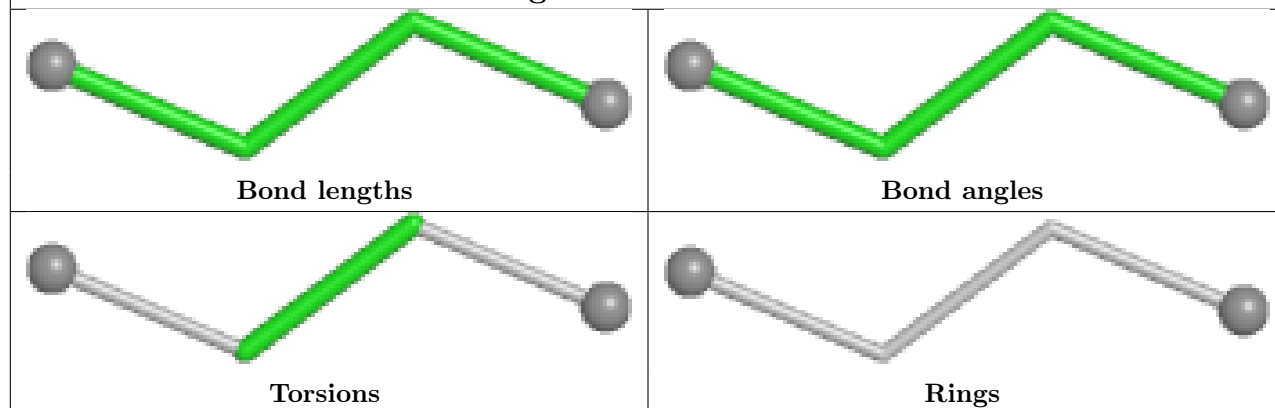


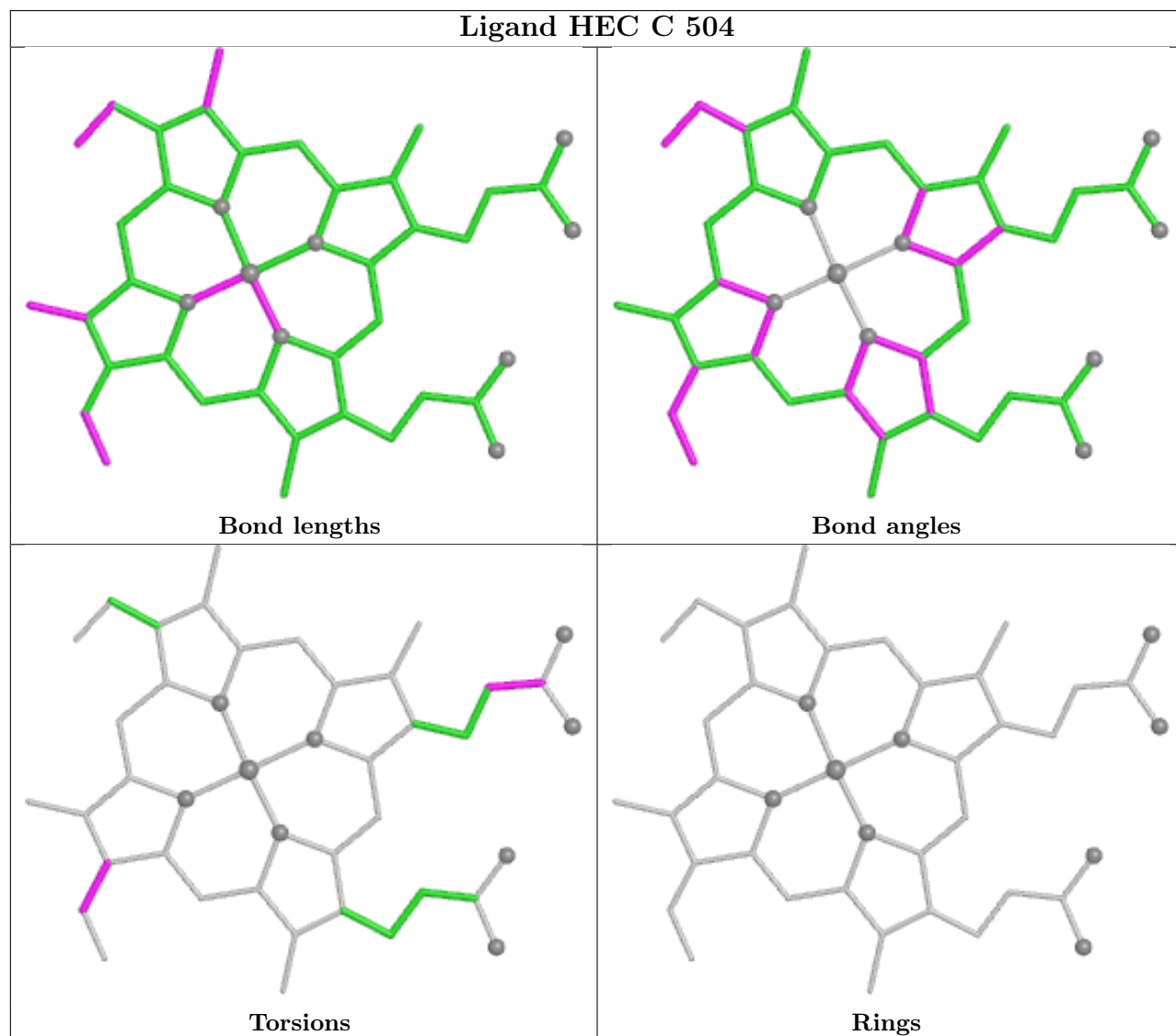
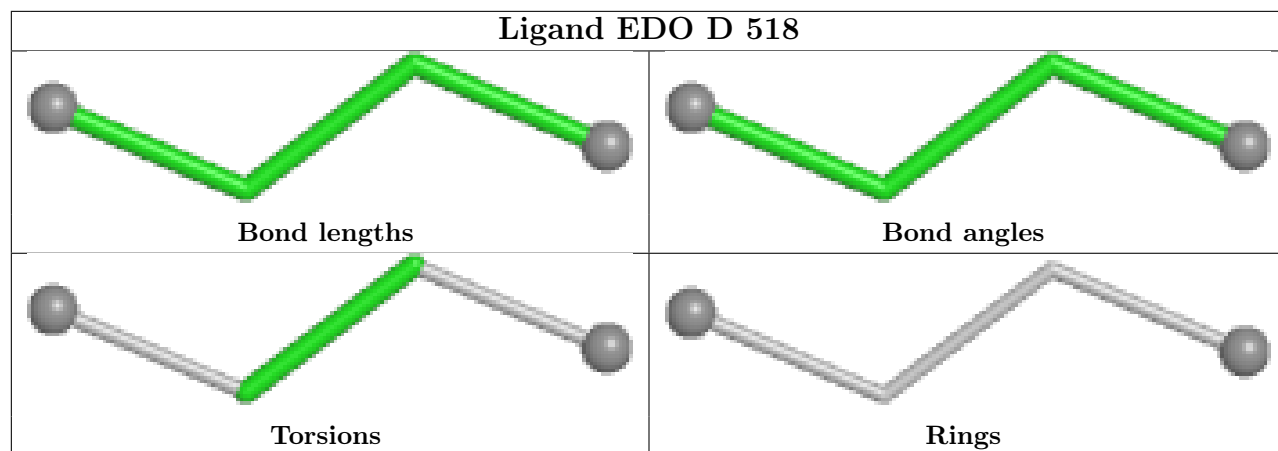


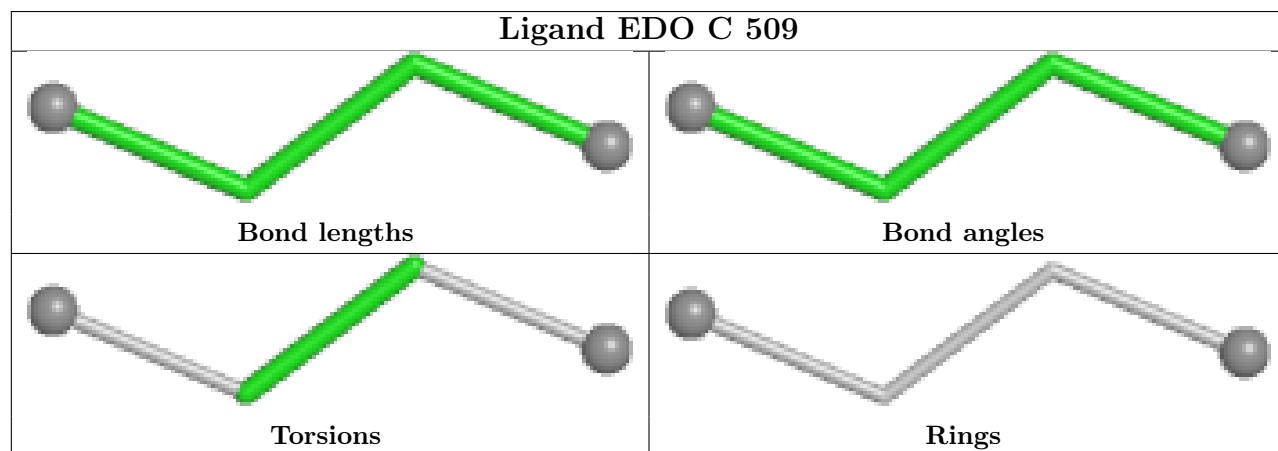
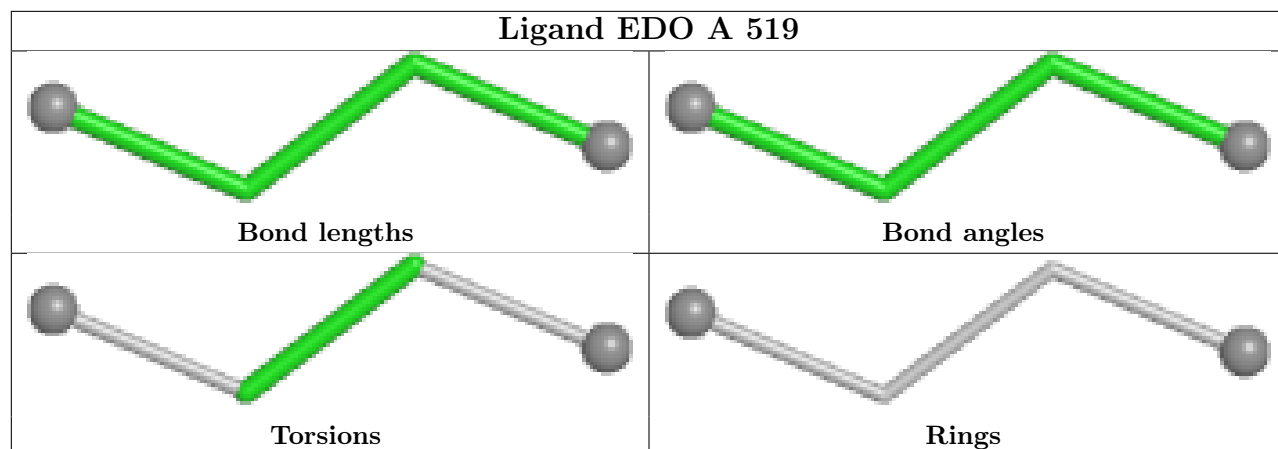
Ligand HEC B 502

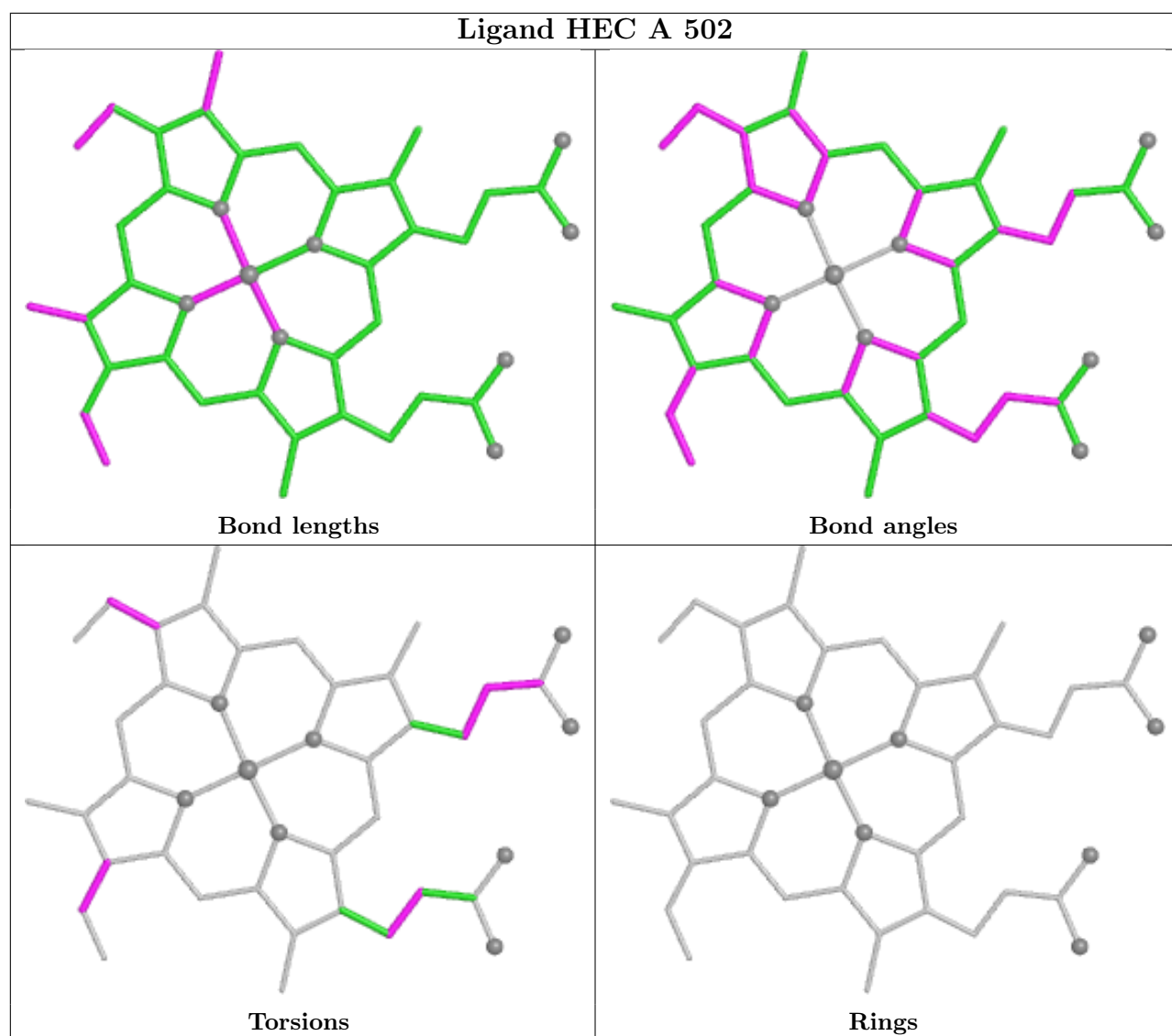


Ligand EDO A 525

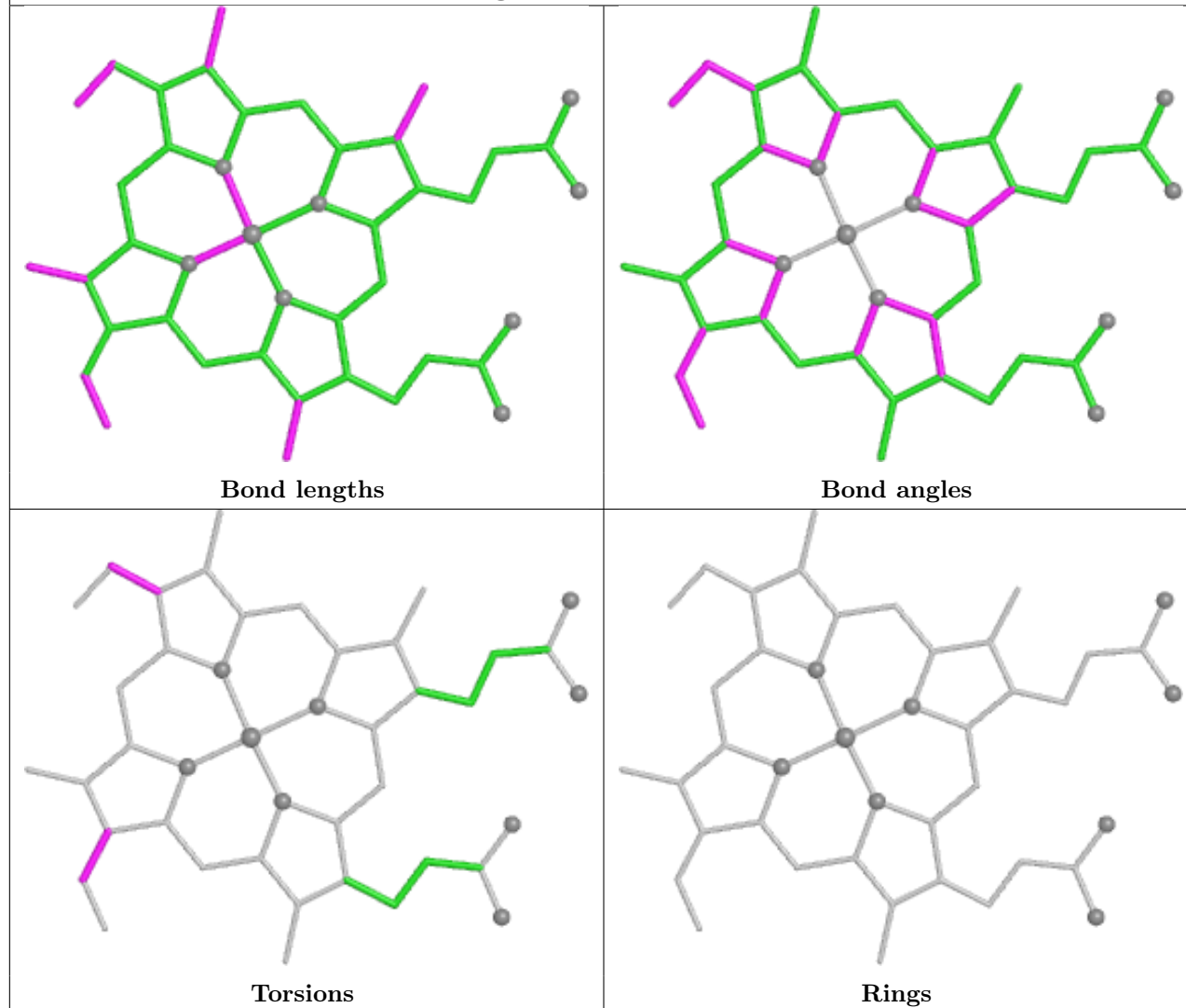




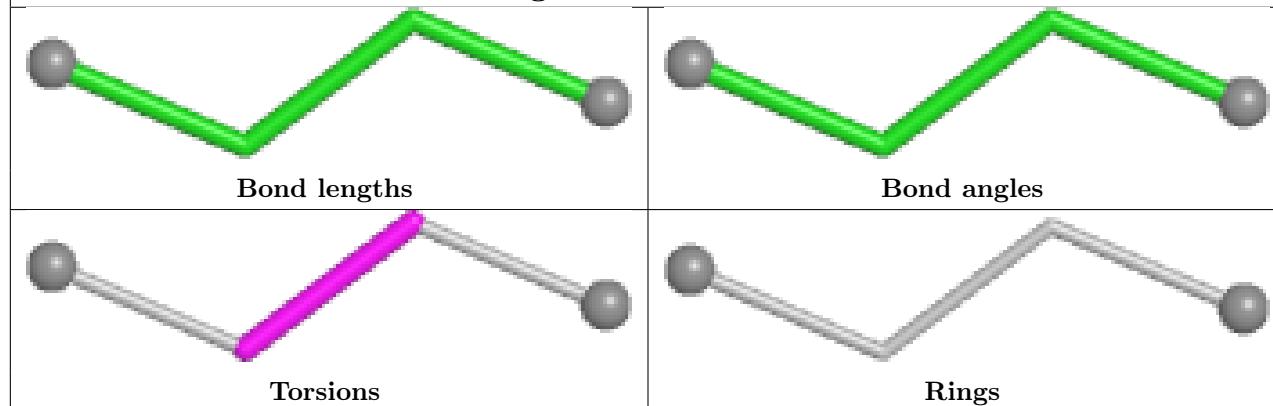


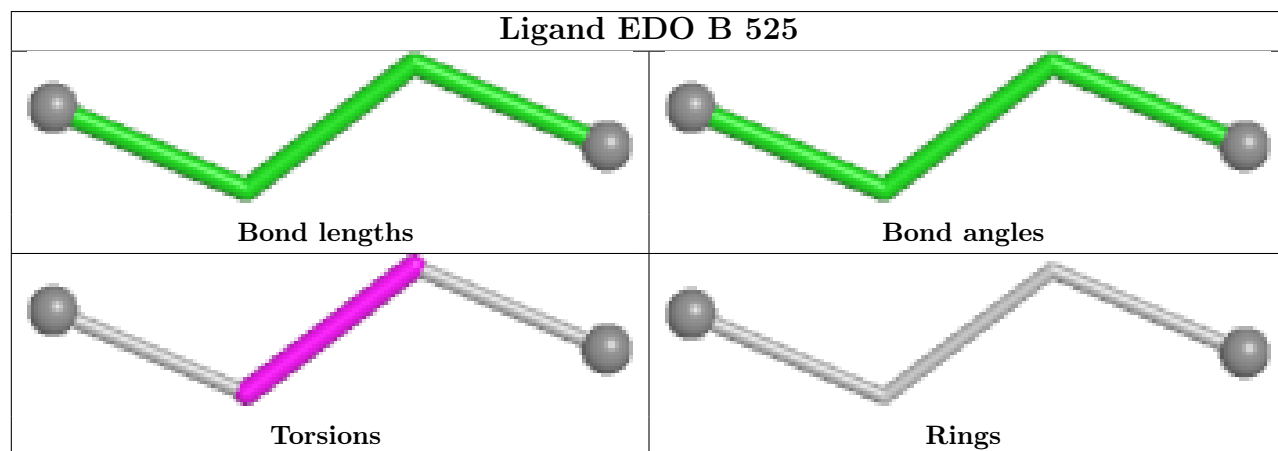
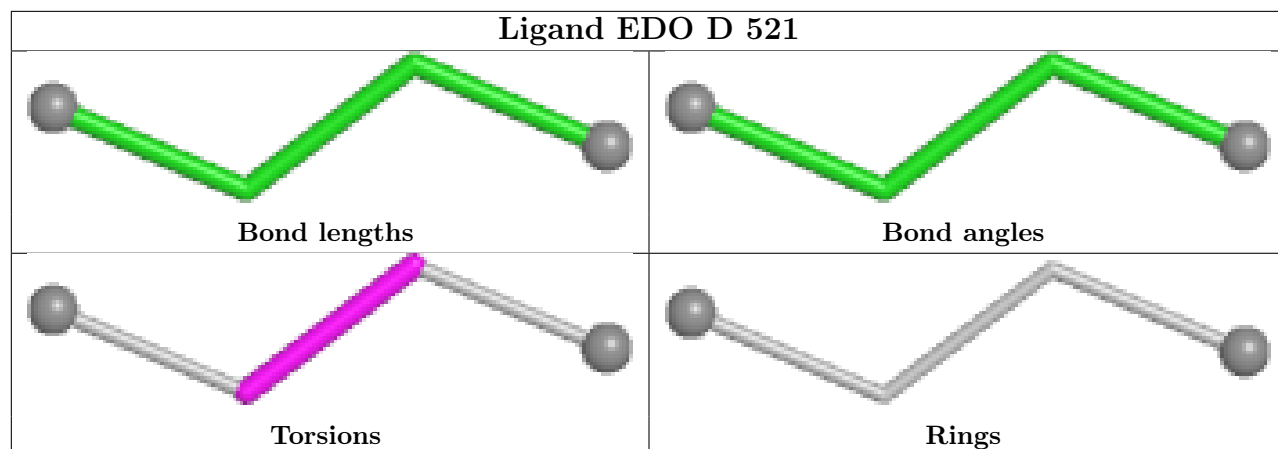


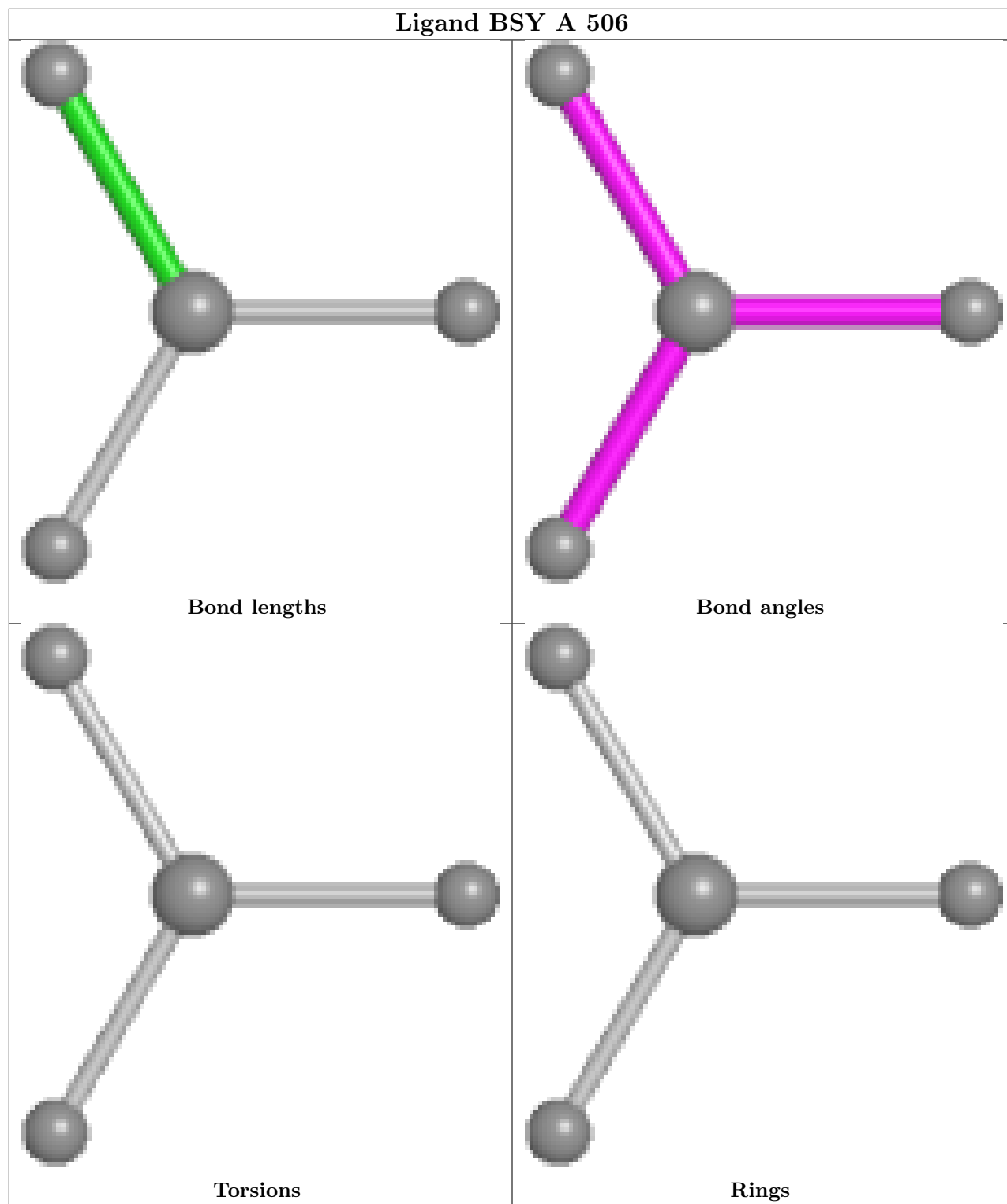
Ligand HEC D 505

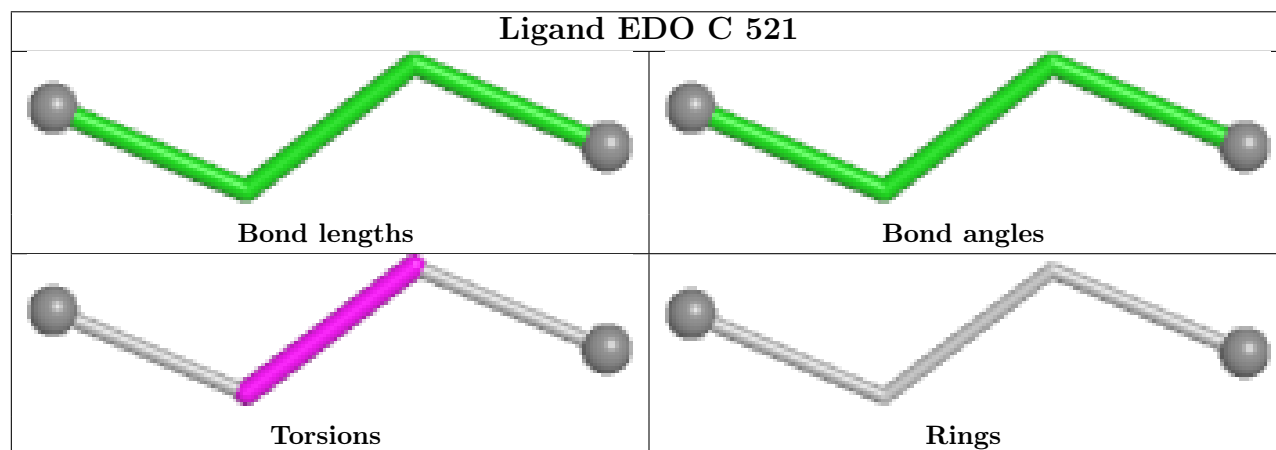
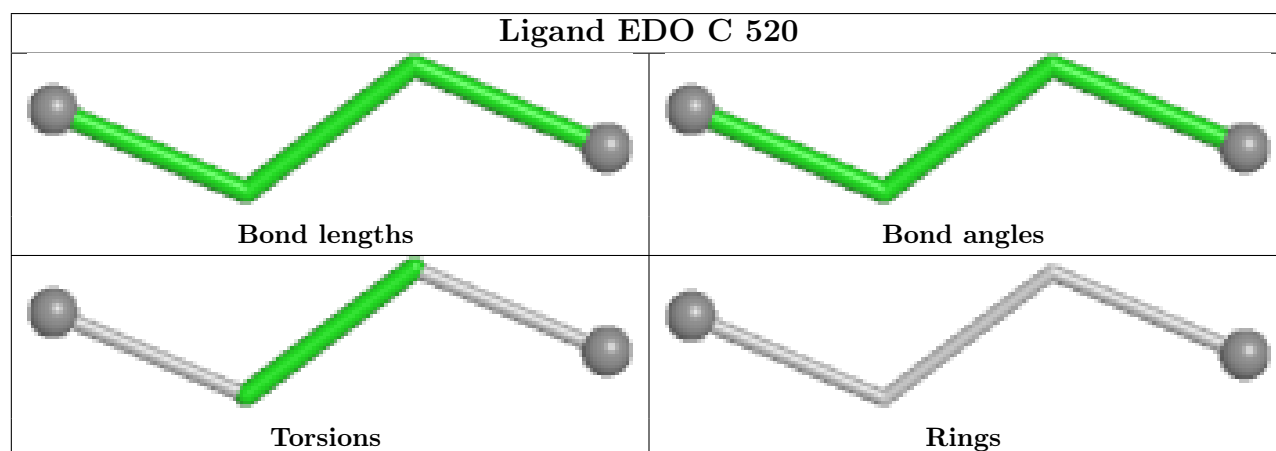
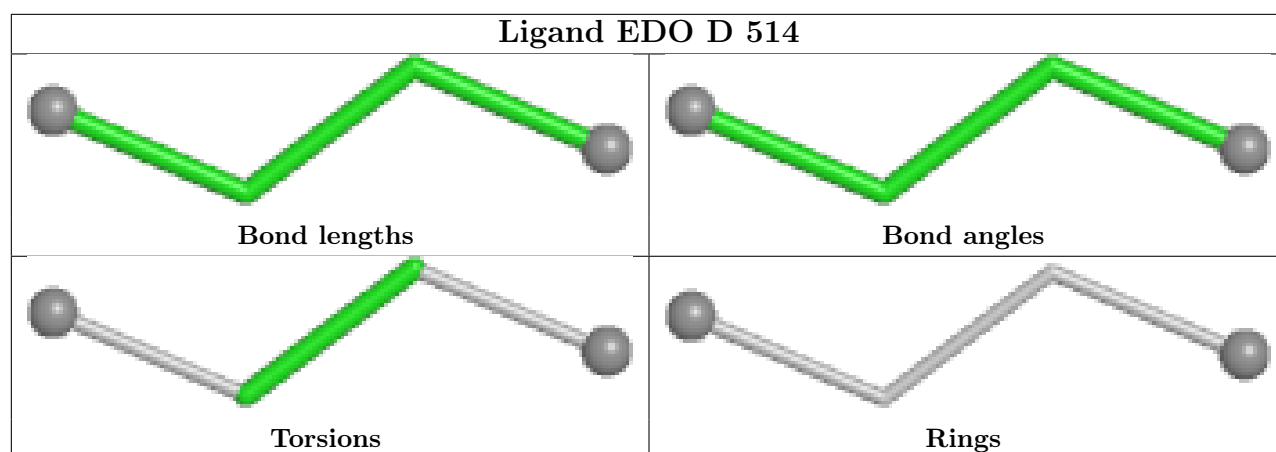


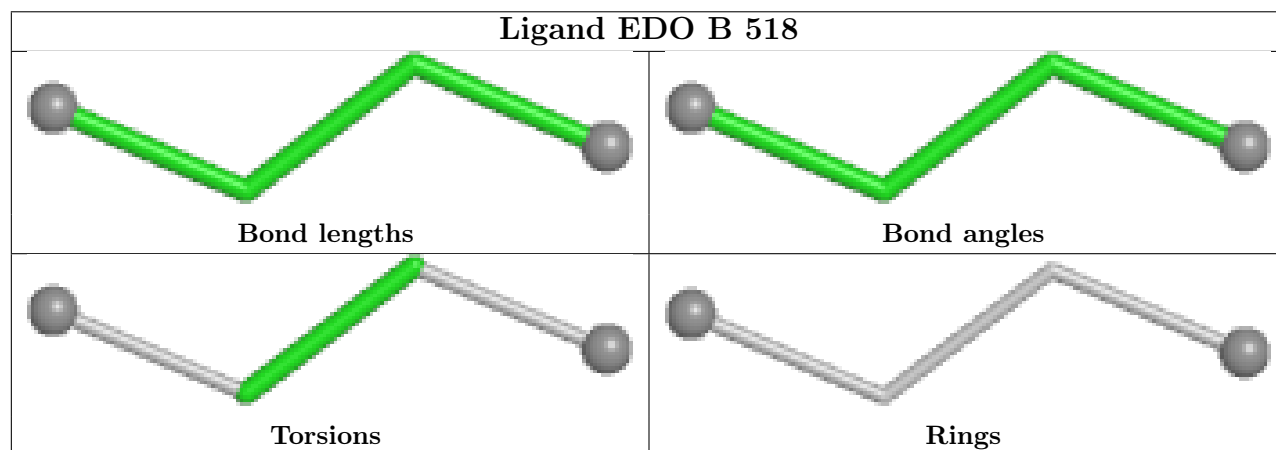
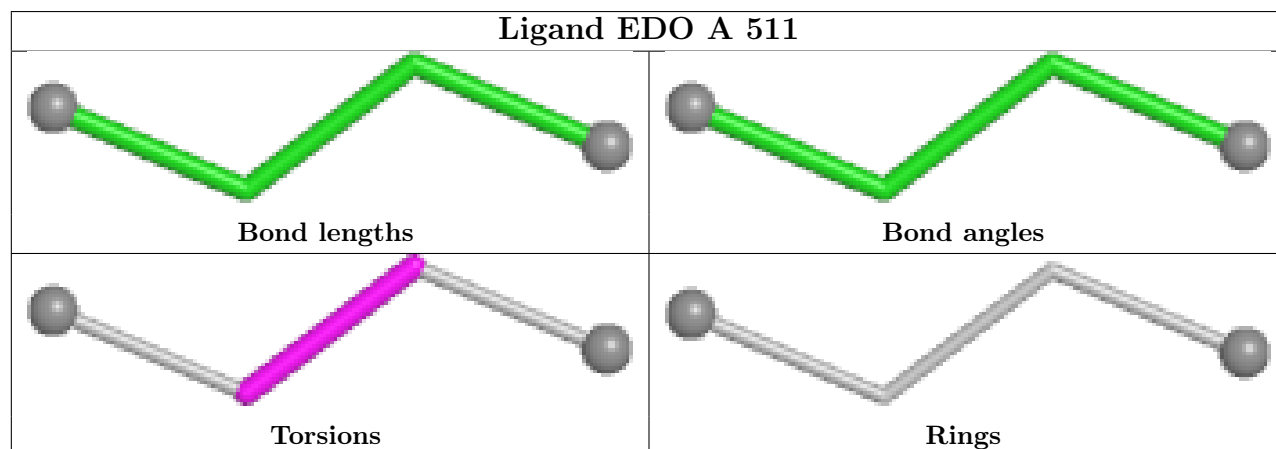
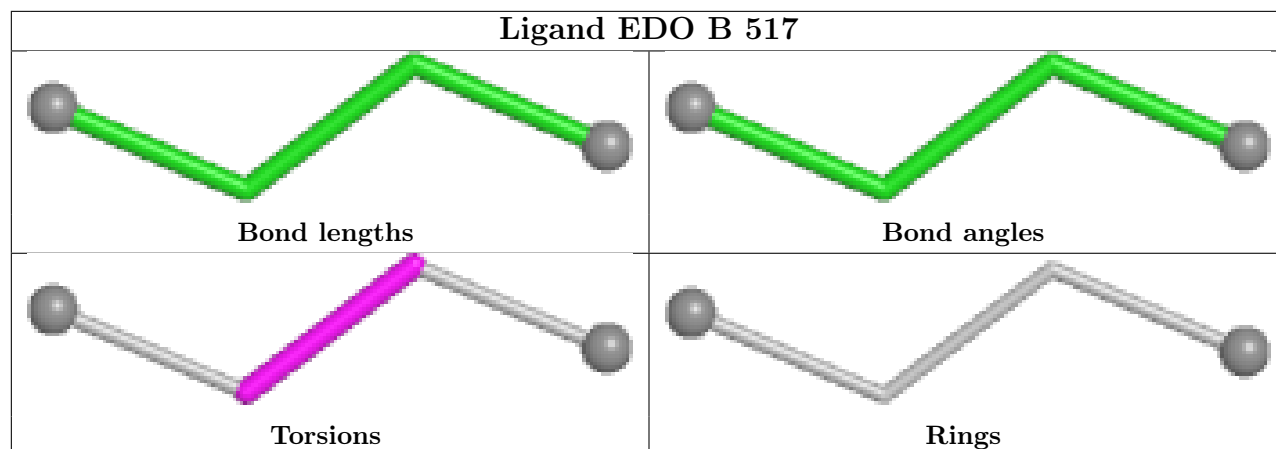
Ligand EDO B 501

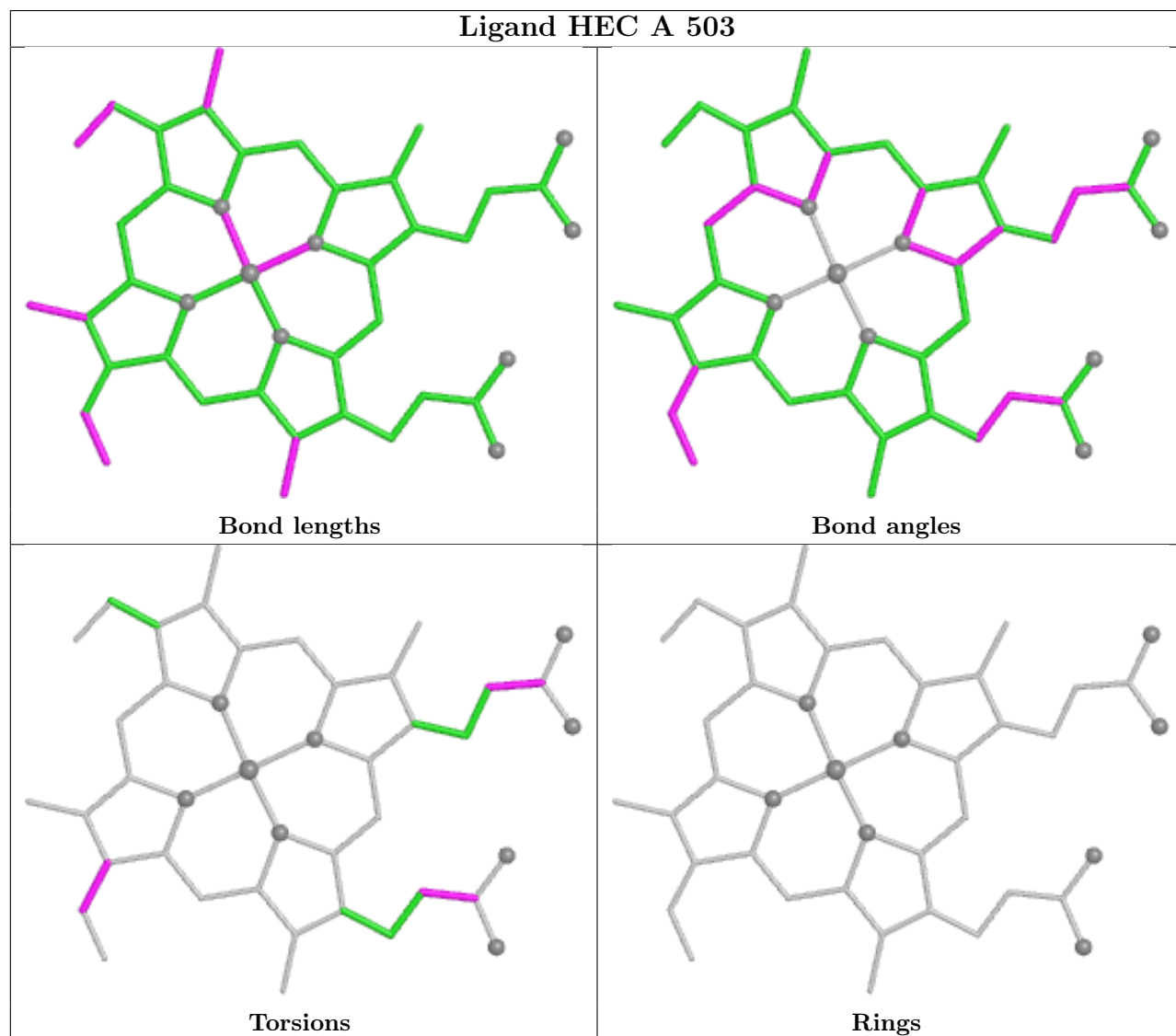
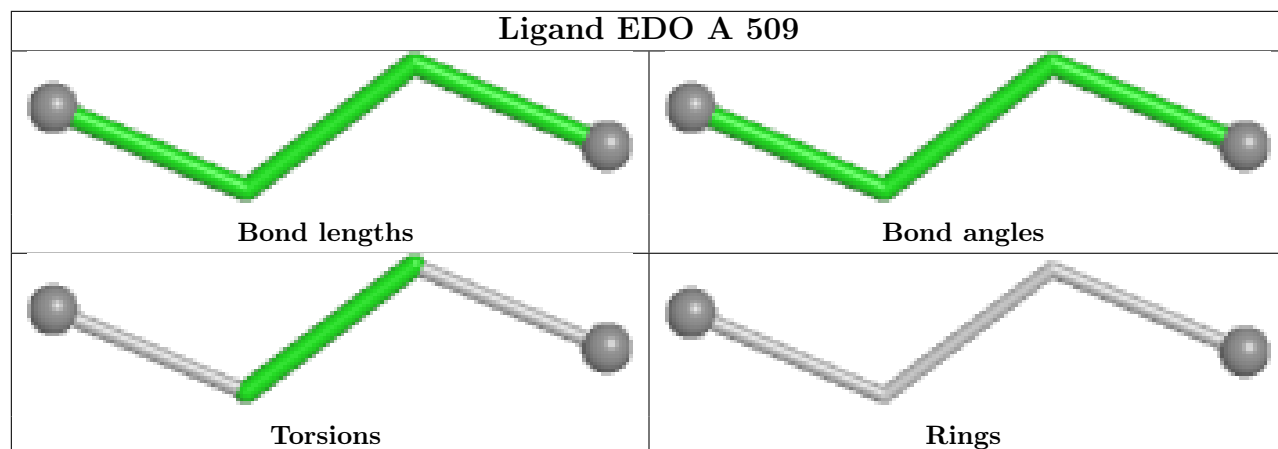


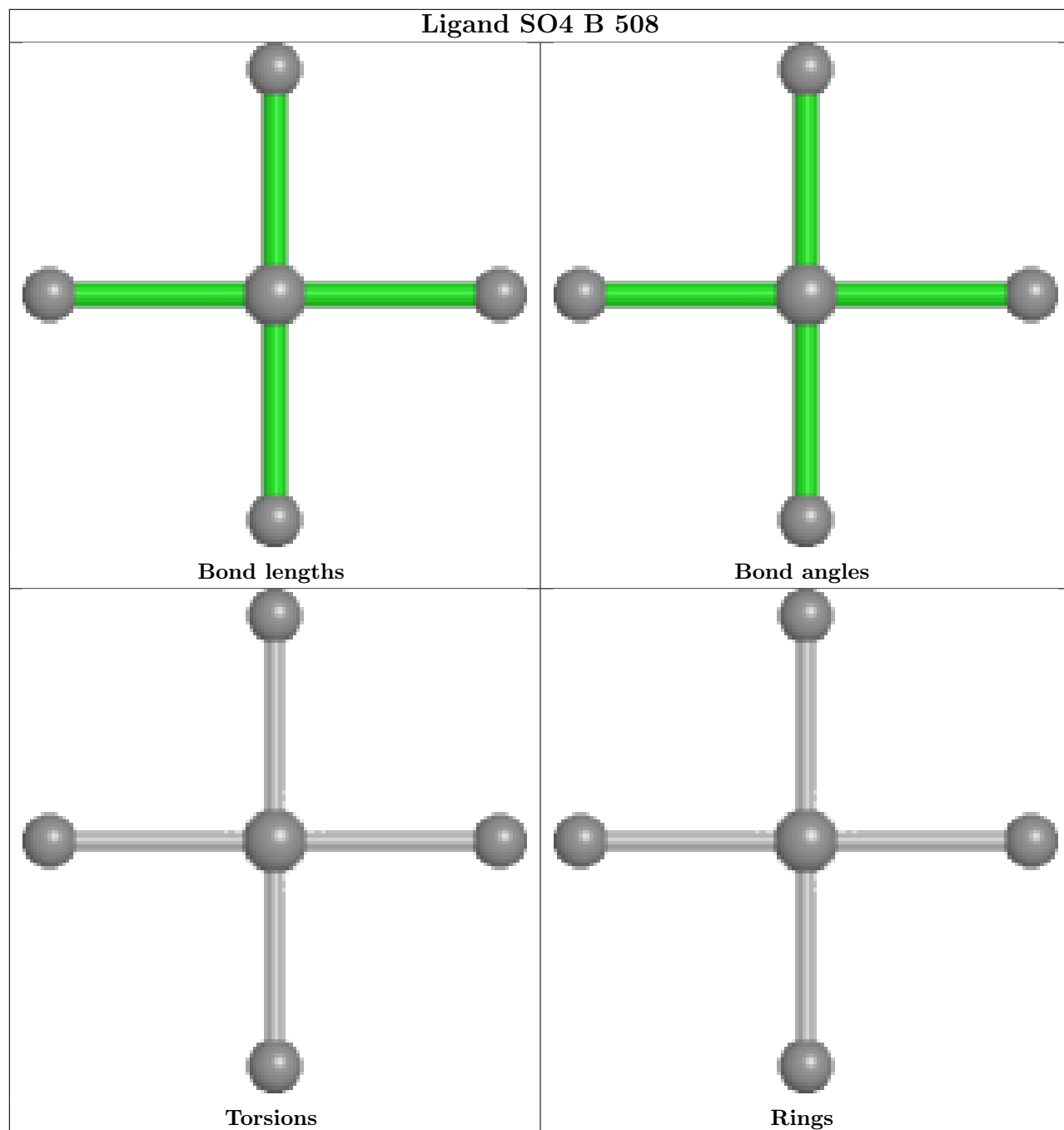


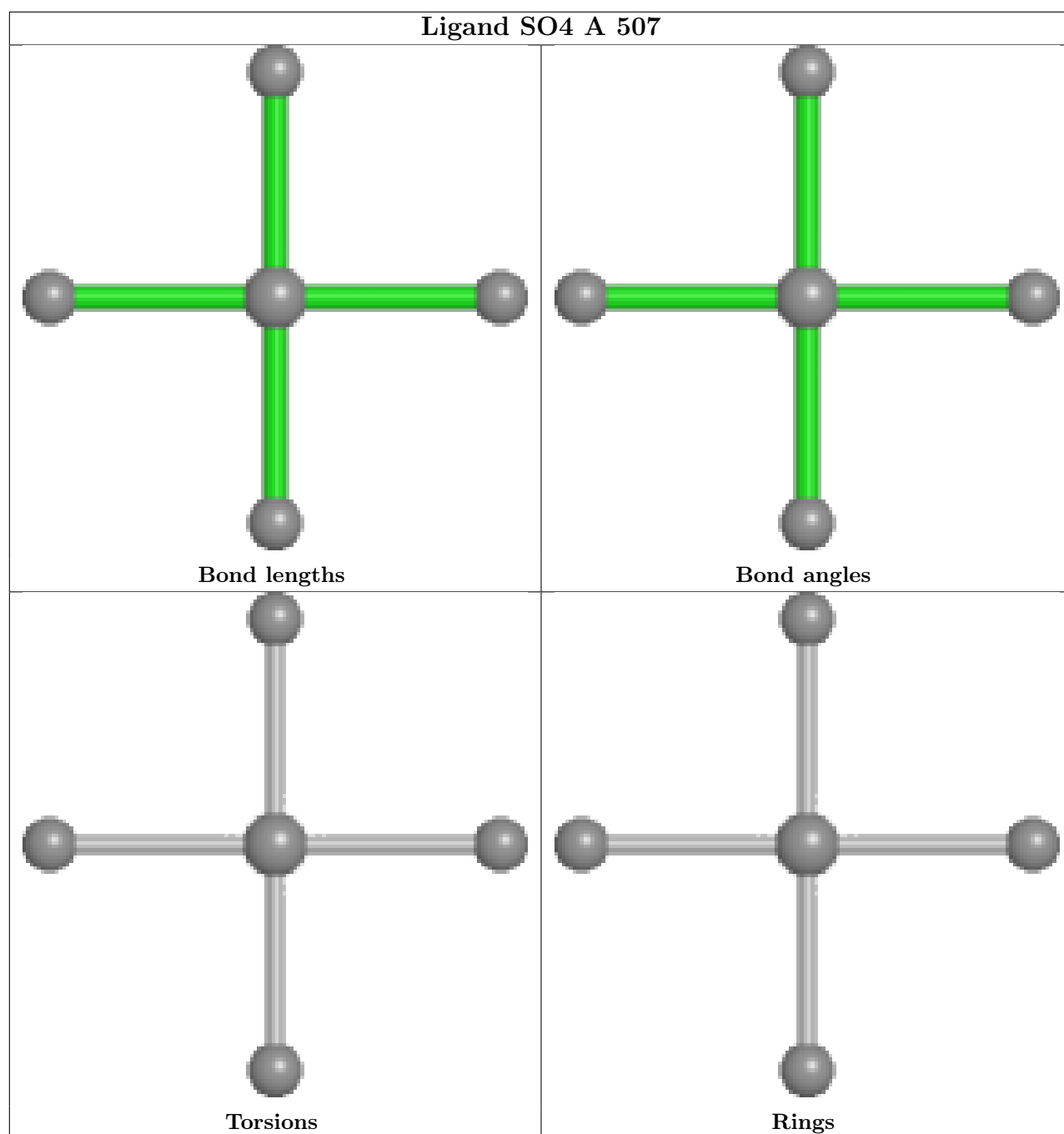


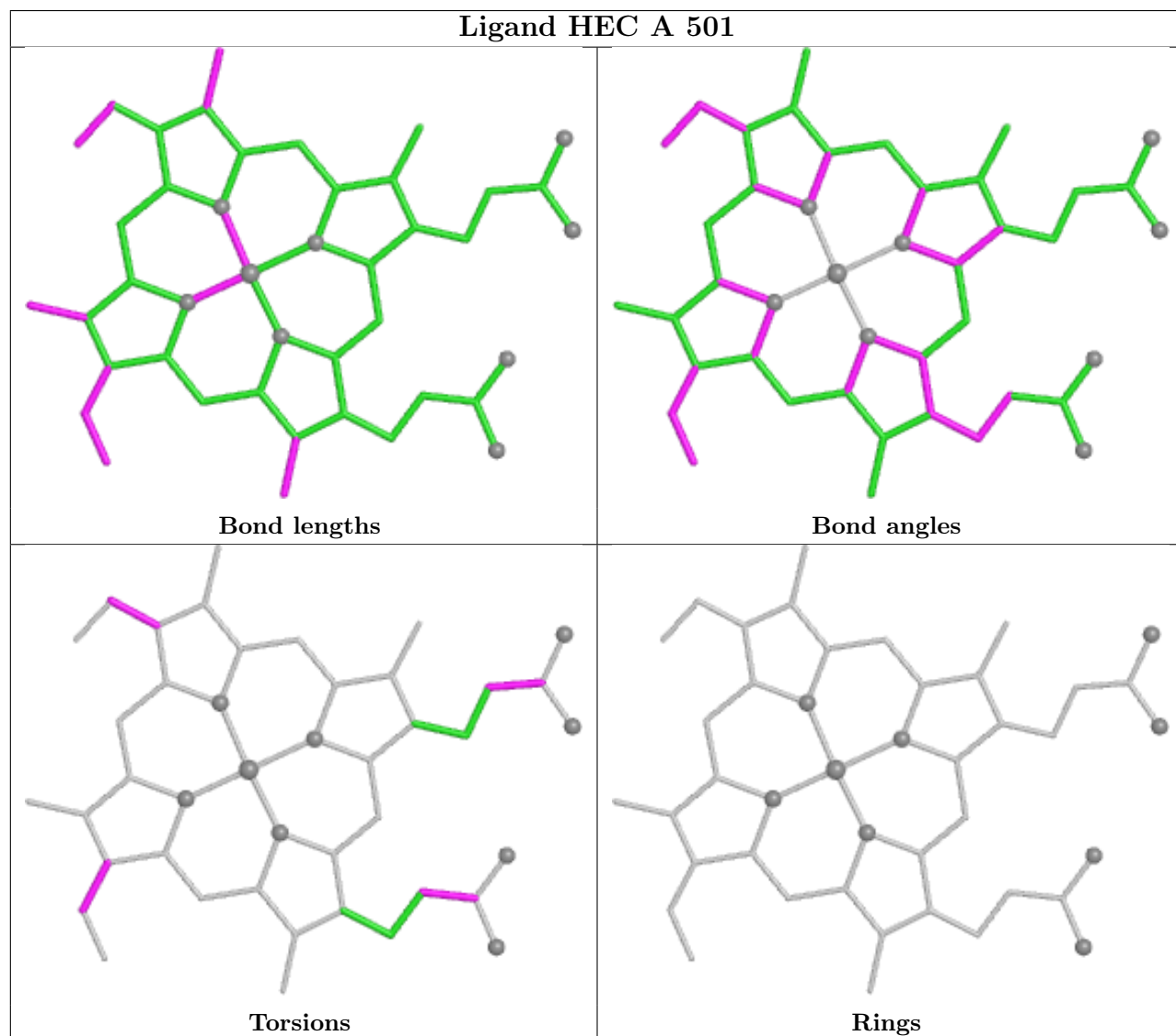
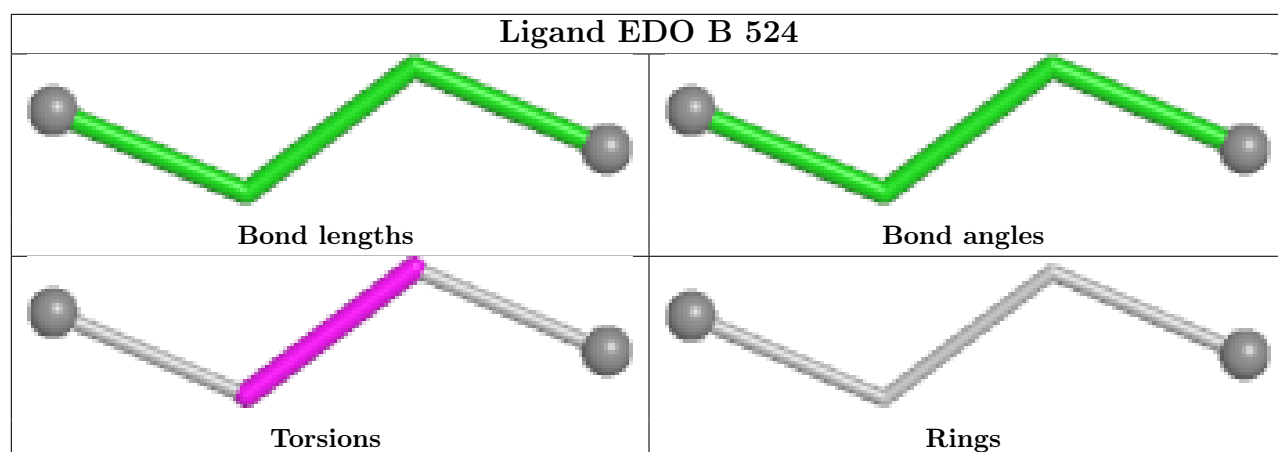




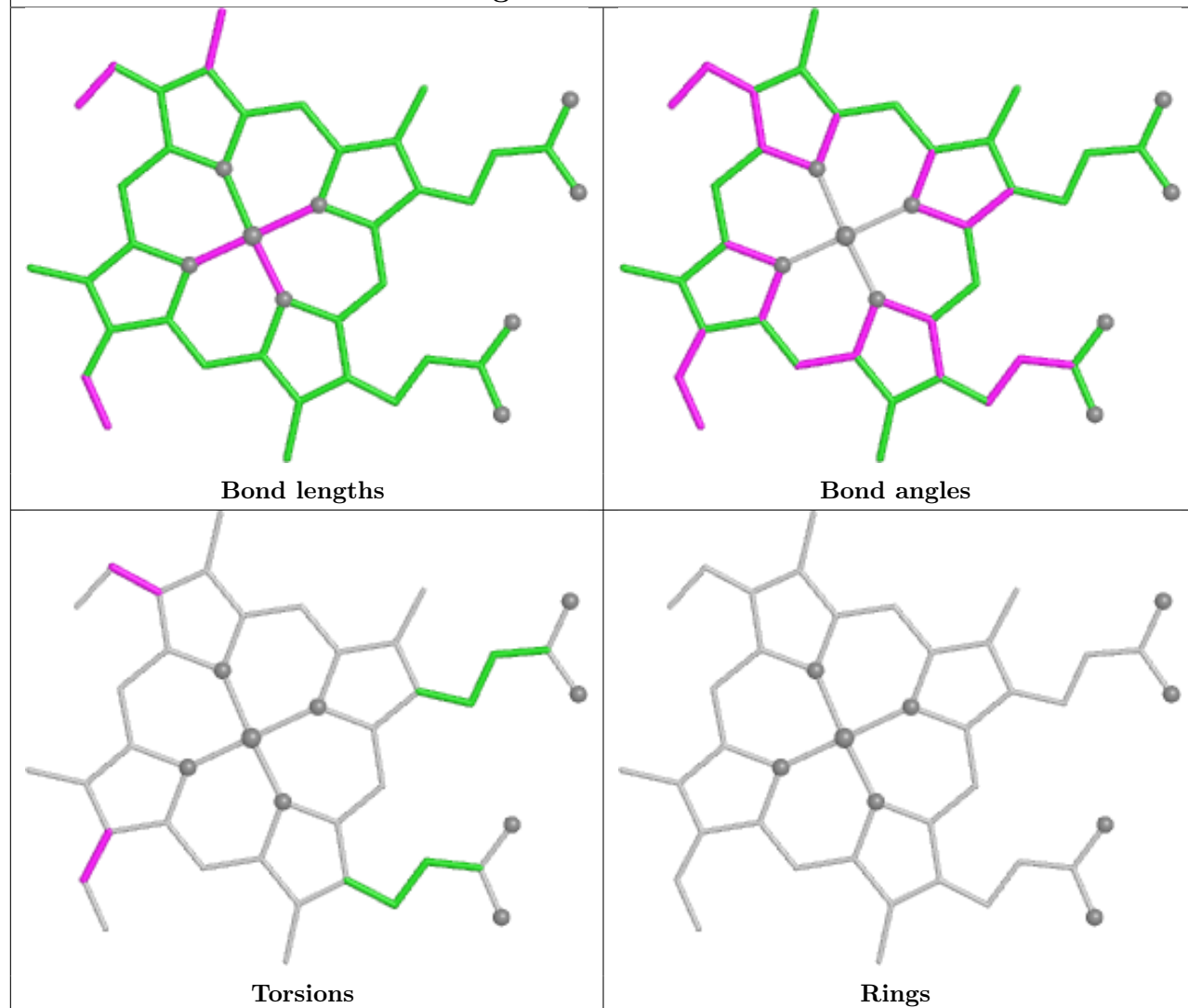




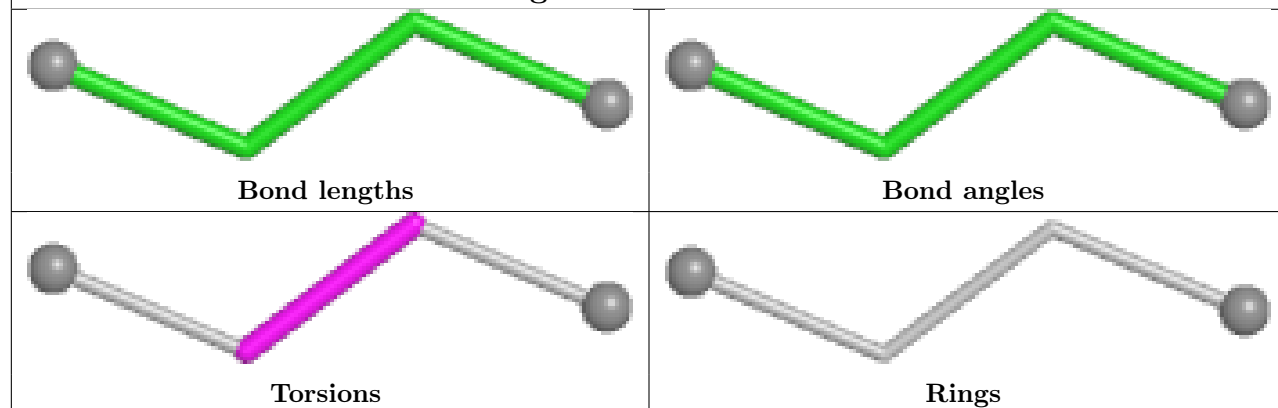


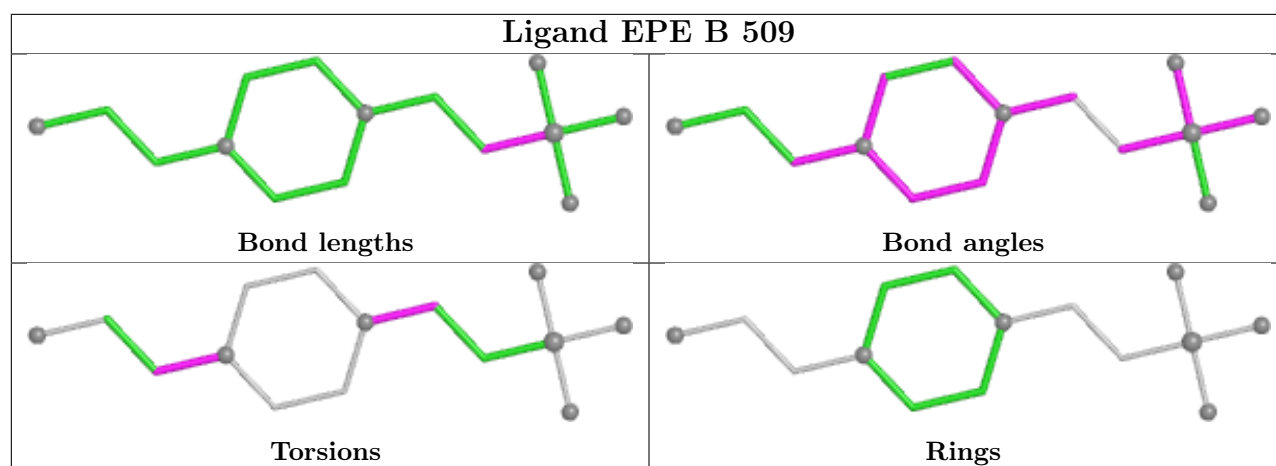


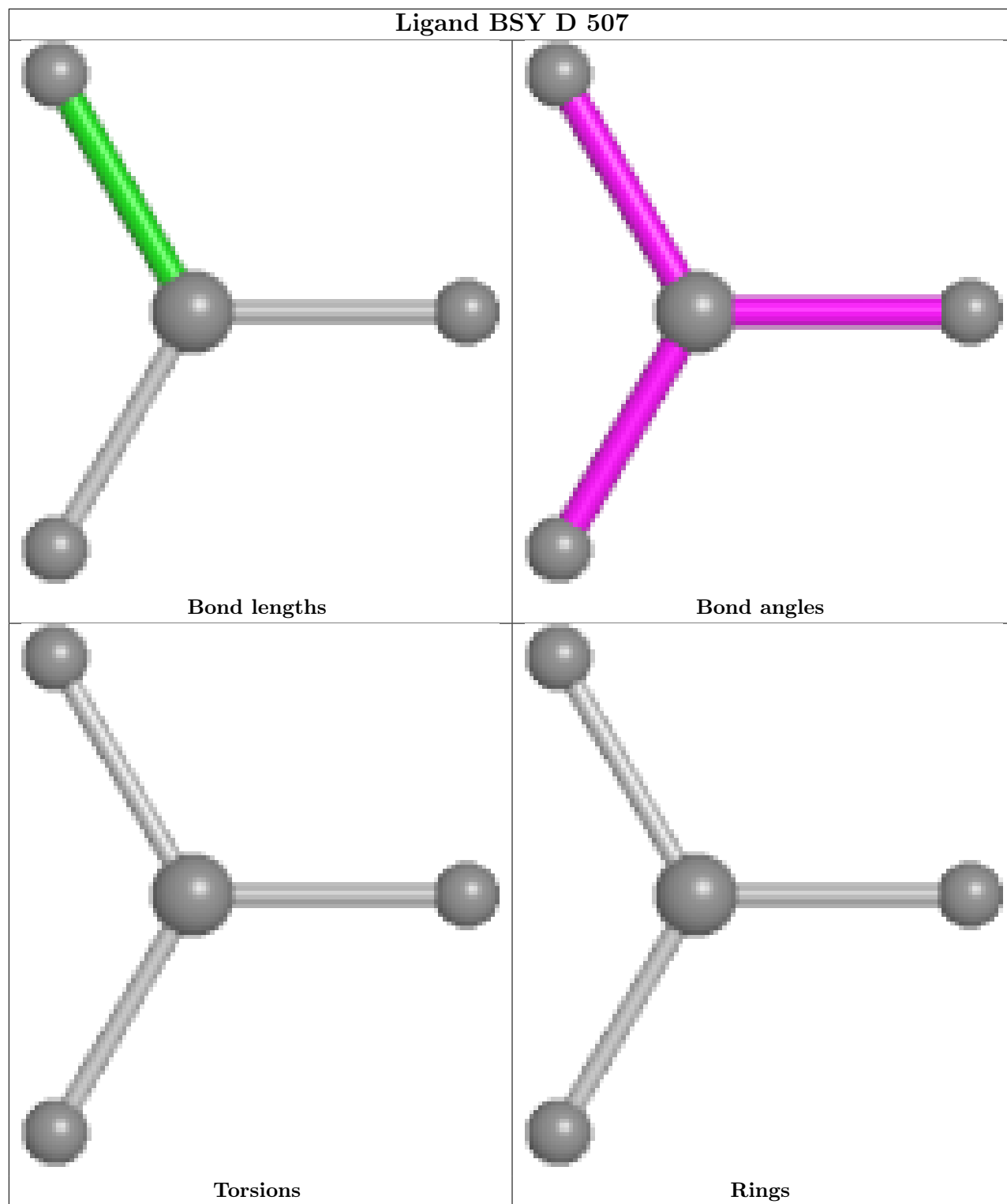
Ligand HEC A 504



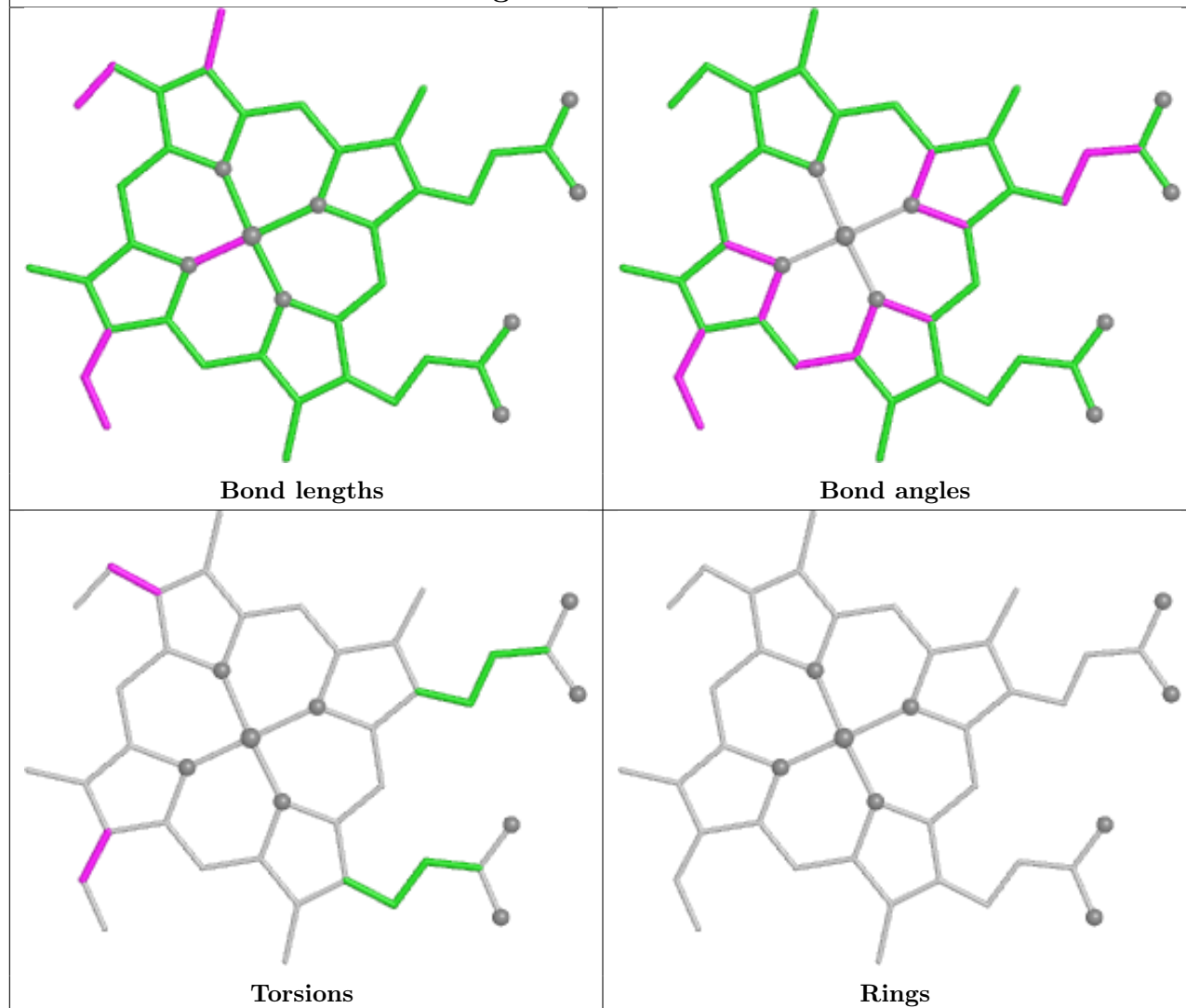
Ligand EDO A 521



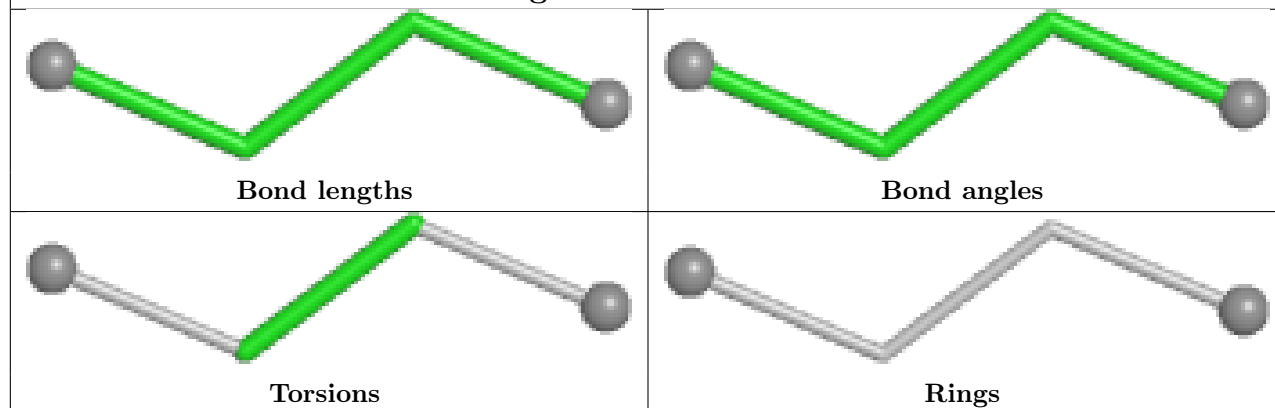


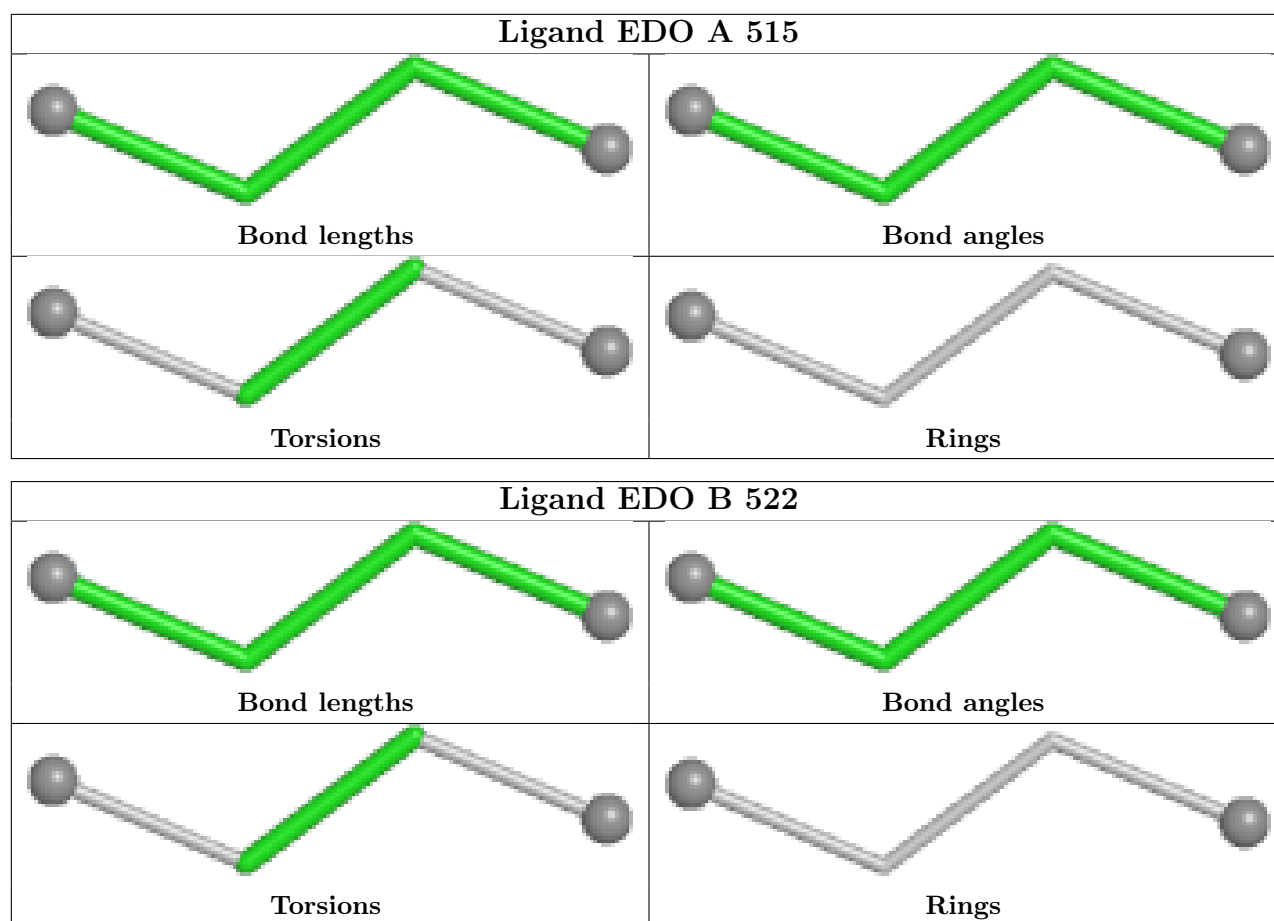


Ligand HEC B 505



Ligand EDO B 512





5.7 Other polymers [i](#)

There are no such residues in this entry.

5.8 Polymer linkage issues [i](#)

There are no chain breaks in this entry.

6 Fit of model and data [i](#)

6.1 Protein, DNA and RNA chains [i](#)

In the following table, the column labelled ‘#RSRZ> 2’ contains the number (and percentage) of RSRZ outliers, followed by percent RSRZ outliers for the chain as percentile scores relative to all X-ray entries and entries of similar resolution. The OWAB column contains the minimum, median, 95th percentile and maximum values of the occupancy-weighted average B-factor per residue. The column labelled ‘Q< 0.9’ lists the number of (and percentage) of residues with an average occupancy less than 0.9.

Mol	Chain	Analysed	<RSRZ>	#RSRZ>2	OWAB(Å ²)	Q<0.9
1	A	421/450 (93%)	-0.44	0 100 100	16, 41, 66, 84	19 (4%)
1	B	421/450 (93%)	-0.48	1 (0%) 91 90	19, 41, 61, 90	17 (4%)
1	C	421/450 (93%)	-0.17	7 (1%) 69 66	20, 50, 75, 96	14 (3%)
1	D	421/450 (93%)	-0.39	0 100 100	18, 43, 67, 86	12 (2%)
All	All	1684/1800 (93%)	-0.37	8 (0%) 87 85	16, 43, 68, 96	62 (3%)

The worst 5 of 8 RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	C	81	THR	2.5
1	C	385[A]	LYS	2.3
1	C	60[A]	GLU	2.3
1	C	157	VAL	2.3
1	B	448	LYS	2.3

6.2 Non-standard residues in protein, DNA, RNA chains [i](#)

There are no non-standard protein/DNA/RNA residues in this entry.

6.3 Carbohydrates [i](#)

There are no oligosaccharides in this entry.

6.4 Ligands [i](#)

In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. The B-factors column lists the minimum, median, 95th percentile and maximum values of B factors of atoms in the group. The column labelled ‘Q< 0.9’ lists the number of atoms with occupancy less than 0.9.

Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors($\text{\AA}^2$)	Q<0.9
4	SO4	C	508	5/5	0.71	0.15	59,69,80,81	5
5	EDO	B	518	4/4	0.73	0.18	61,73,74,87	0
5	EDO	D	515	4/4	0.75	0.19	65,68,70,76	0
5	EDO	B	524	4/4	0.76	0.18	59,64,69,74	0
5	EDO	A	523	4/4	0.77	0.17	58,58,69,81	4
5	EDO	D	519	4/4	0.77	0.15	60,69,71,77	0
4	SO4	D	508	5/5	0.78	0.14	59,61,73,74	5
5	EDO	B	517	4/4	0.78	0.19	50,55,59,64	4
5	EDO	B	501	4/4	0.79	0.25	35,41,49,54	4
5	EDO	A	512	4/4	0.79	0.17	47,62,68,81	0
5	EDO	D	520	4/4	0.80	0.23	45,52,56,63	4
5	EDO	D	521	4/4	0.81	0.16	47,52,57,61	4
6	EPE	B	509	15/15	0.82	0.21	60,66,77,79	15
4	SO4	A	507	5/5	0.83	0.19	36,40,56,59	5
5	EDO	A	513	4/4	0.83	0.16	52,53,55,62	4
5	EDO	C	513	4/4	0.83	0.17	64,65,76,82	0
5	EDO	A	521	4/4	0.83	0.26	49,52,54,57	0
4	SO4	B	508	5/5	0.84	0.13	62,65,79,82	5
5	EDO	A	511	4/4	0.84	0.18	53,56,57,58	0
5	EDO	A	518	4/4	0.84	0.24	60,62,63,72	0
5	EDO	B	514	4/4	0.85	0.15	64,64,65,68	0
5	EDO	A	514	4/4	0.86	0.17	34,39,45,50	4
5	EDO	B	525	4/4	0.86	0.17	47,51,58,64	0
5	EDO	B	520	4/4	0.87	0.12	41,45,48,66	4
5	EDO	C	521	4/4	0.87	0.16	46,46,50,51	4
5	EDO	D	513	4/4	0.87	0.12	48,64,64,71	0
5	EDO	B	522	4/4	0.87	0.14	48,57,58,58	4
5	EDO	A	517	4/4	0.88	0.10	47,61,65,68	0
5	EDO	D	510	4/4	0.88	0.15	50,68,71,76	0
5	EDO	A	519	4/4	0.88	0.21	40,49,55,63	0
5	EDO	C	511	4/4	0.88	0.15	41,42,60,62	4
5	EDO	C	512	4/4	0.88	0.16	38,45,49,58	4
5	EDO	A	524	4/4	0.88	0.15	48,49,56,56	0
5	EDO	C	515	4/4	0.88	0.15	55,56,60,62	0
5	EDO	C	516	4/4	0.88	0.22	61,68,71,73	0
5	EDO	B	519	4/4	0.89	0.12	49,61,67,71	0
4	SO4	A	508	5/5	0.89	0.11	50,64,75,78	5
5	EDO	D	511	4/4	0.89	0.12	55,56,58,79	0
5	EDO	C	519	4/4	0.89	0.11	59,63,69,72	0
5	EDO	D	514	4/4	0.89	0.14	47,51,59,61	0
5	EDO	A	516	4/4	0.90	0.16	44,50,55,59	0
5	EDO	A	515	4/4	0.90	0.14	39,46,49,65	4
5	EDO	A	525	4/4	0.91	0.15	40,45,52,52	0

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Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors($\text{\AA}^2$)	Q<0.9
5	EDO	B	521	4/4	0.91	0.13	34,37,40,45	4
5	EDO	B	513	4/4	0.91	0.14	43,52,54,57	0
5	EDO	C	518	4/4	0.91	0.16	57,58,62,63	4
5	EDO	B	523	4/4	0.91	0.27	42,48,63,66	0
5	EDO	B	516	4/4	0.92	0.13	37,40,41,47	4
5	EDO	A	510	4/4	0.92	0.17	32,40,46,66	4
5	EDO	B	511	4/4	0.92	0.14	39,63,67,77	0
5	EDO	A	509	4/4	0.92	0.14	42,43,53,64	0
5	EDO	D	516	4/4	0.92	0.14	41,44,46,48	4
5	EDO	D	517	4/4	0.92	0.19	45,53,58,60	0
5	EDO	C	501	4/4	0.92	0.13	38,50,60,68	0
5	EDO	A	527	4/4	0.92	0.20	40,41,58,60	0
5	EDO	D	509	4/4	0.92	0.12	42,49,52,57	0
5	EDO	B	515	4/4	0.92	0.14	47,49,50,58	0
5	EDO	D	501	4/4	0.93	0.13	41,42,48,48	4
5	EDO	A	522	4/4	0.93	0.19	44,49,54,58	0
5	EDO	C	517	4/4	0.93	0.11	47,48,49,51	4
5	EDO	B	512	4/4	0.93	0.12	43,46,54,62	0
5	EDO	D	512	4/4	0.93	0.16	54,56,56,68	0
5	EDO	C	509	4/4	0.93	0.13	51,63,64,79	0
5	EDO	C	510	4/4	0.93	0.15	49,50,50,58	0
5	EDO	D	518	4/4	0.94	0.14	27,30,38,41	4
5	EDO	A	526	4/4	0.94	0.14	48,51,60,62	0
3	BSY	D	507	4/4	0.94	0.18	43,62,63,71	4
5	EDO	B	526	4/4	0.94	0.13	38,39,45,52	4
5	EDO	C	514	4/4	0.94	0.24	42,43,43,50	0
3	BSY	B	507	4/4	0.95	0.20	47,56,57,60	4
3	BSY	A	506	4/4	0.95	0.18	45,51,51,67	4
5	EDO	B	510	4/4	0.95	0.10	59,63,67,69	0
5	EDO	C	520	4/4	0.95	0.17	53,57,62,64	0
5	EDO	A	520	4/4	0.95	0.29	34,41,45,49	0
3	BSY	C	507	4/4	0.96	0.19	58,60,68,74	4
2	HEC	C	502	43/43	0.97	0.08	52,64,73,77	0
2	HEC	B	505	43/43	0.98	0.06	25,34,45,50	0
2	HEC	A	502	43/43	0.98	0.07	29,39,60,71	0
2	HEC	C	503	43/43	0.98	0.07	38,47,67,79	0
2	HEC	C	504	43/43	0.98	0.08	37,51,63,70	0
2	HEC	C	505	43/43	0.98	0.07	35,43,57,62	0
2	HEC	C	506	43/43	0.98	0.06	33,41,48,61	0
2	HEC	D	502	43/43	0.98	0.07	44,50,63,67	0
2	HEC	D	503	43/43	0.98	0.07	29,39,53,60	0
2	HEC	D	504	43/43	0.98	0.06	35,41,55,57	0

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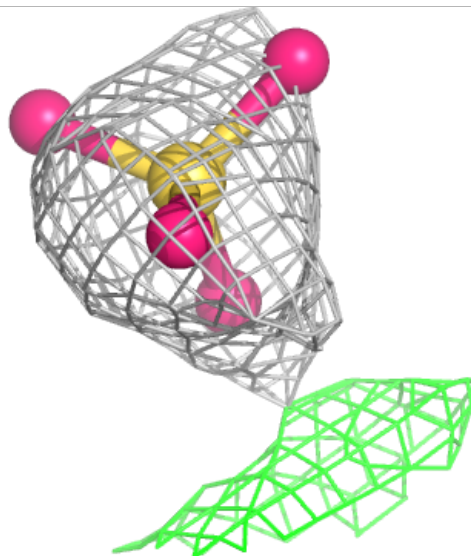
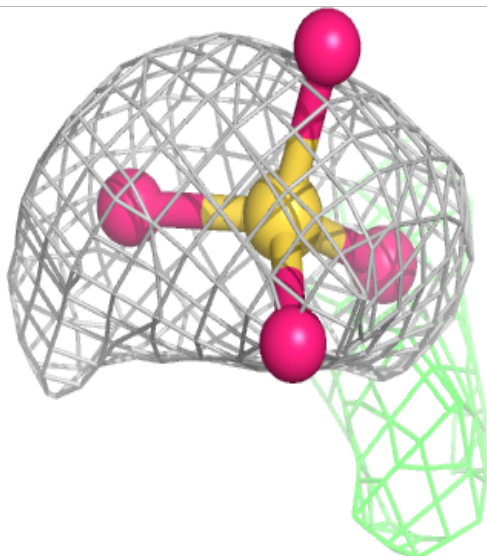
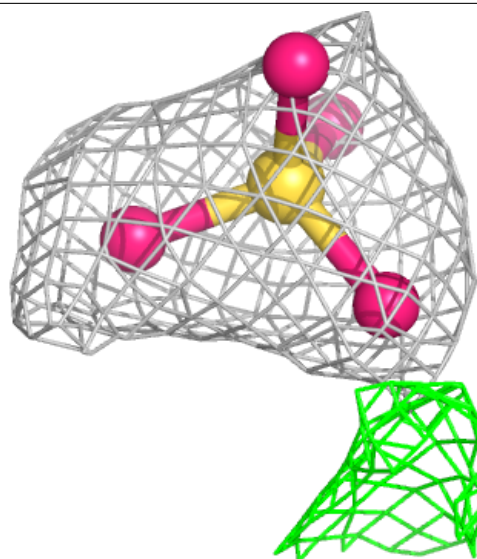
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Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors($\text{\AA}^2$)	Q<0.9
2	HEC	B	502	43/43	0.98	0.07	34,47,55,69	0
2	HEC	B	503	43/43	0.98	0.07	30,35,52,56	0
2	HEC	B	504	43/43	0.98	0.06	29,38,50,62	0
2	HEC	D	505	43/43	0.99	0.06	27,36,46,53	0
2	HEC	D	506	43/43	0.99	0.05	27,34,42,50	0
2	HEC	A	505	43/43	0.99	0.05	26,34,41,59	0
2	HEC	B	506	43/43	0.99	0.05	28,33,43,53	0
2	HEC	A	501	43/43	0.99	0.06	32,38,47,61	0
2	HEC	A	503	43/43	0.99	0.06	28,34,49,63	0
2	HEC	A	504	43/43	0.99	0.05	28,32,49,52	0

The following is a graphical depiction of the model fit to experimental electron density of all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the geometry validation Tables will also be included. Each fit is shown from different orientation to approximate a three-dimensional view.

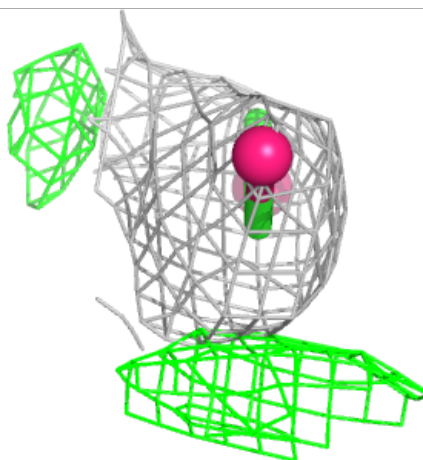
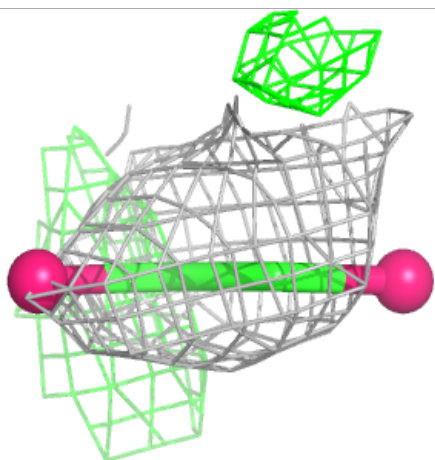
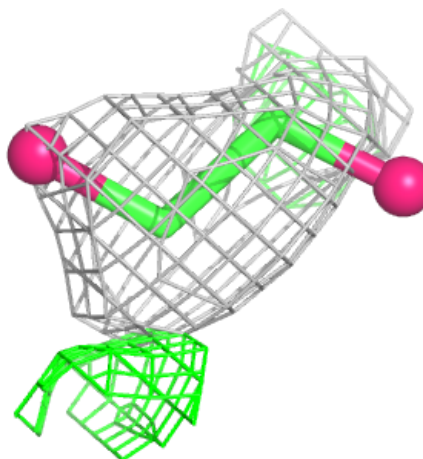
Electron density around SO4 C 508:

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)



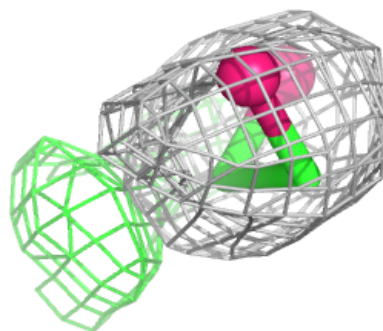
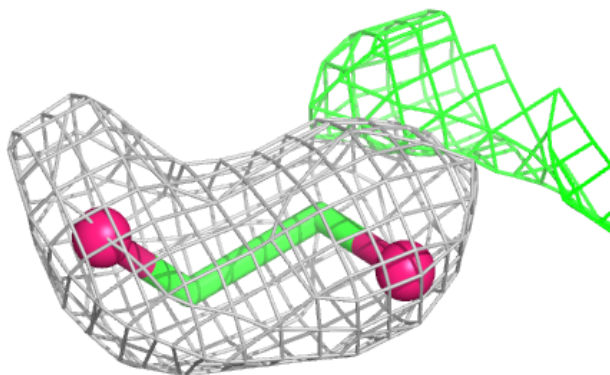
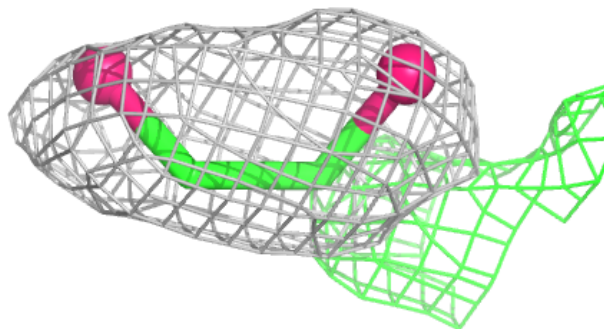
Electron density around EDO B 518:

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)



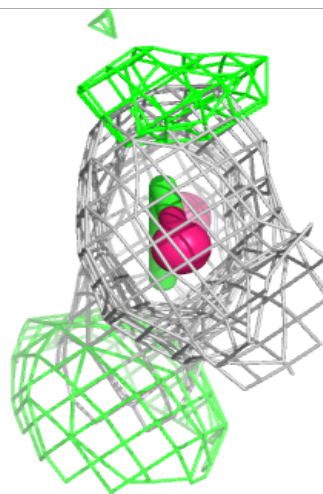
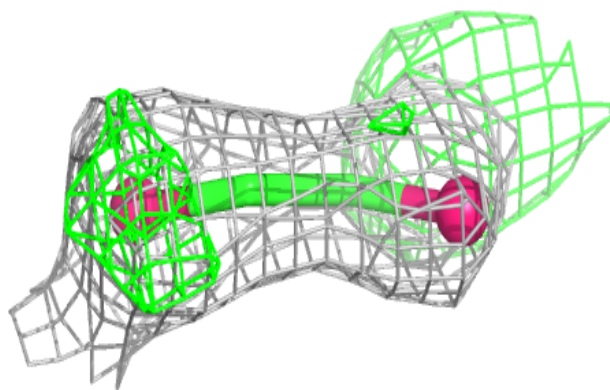
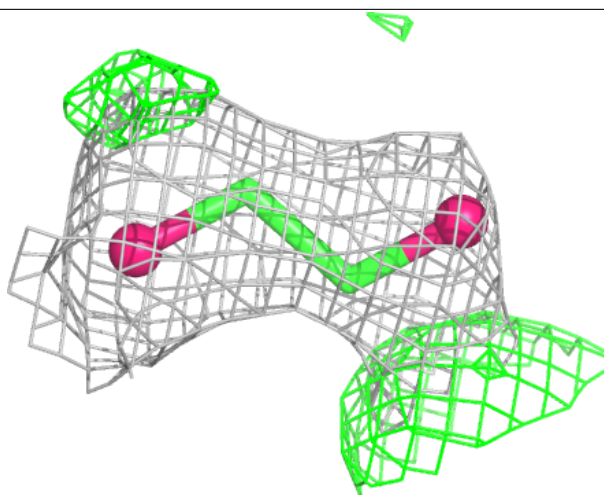
Electron density around EDO D 515:

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)



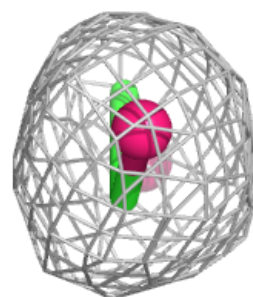
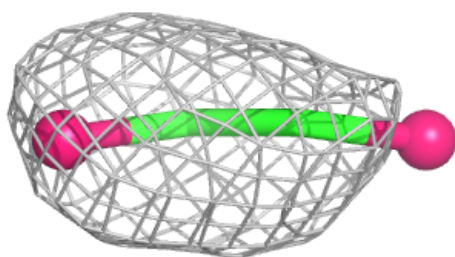
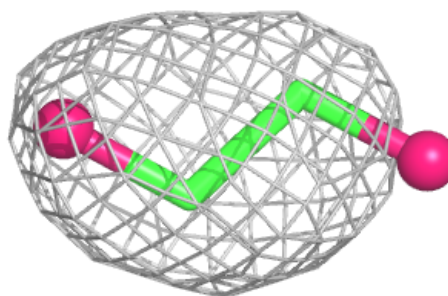
Electron density around EDO B 524:

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)

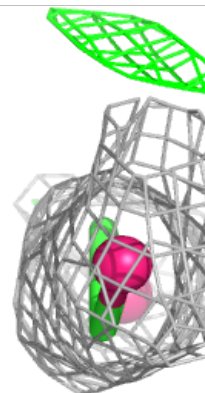
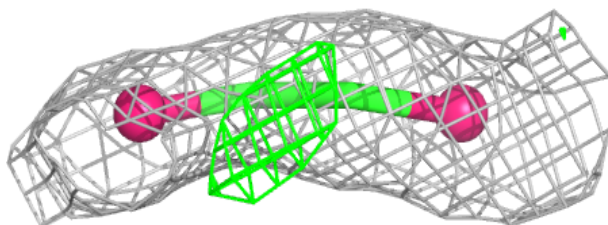
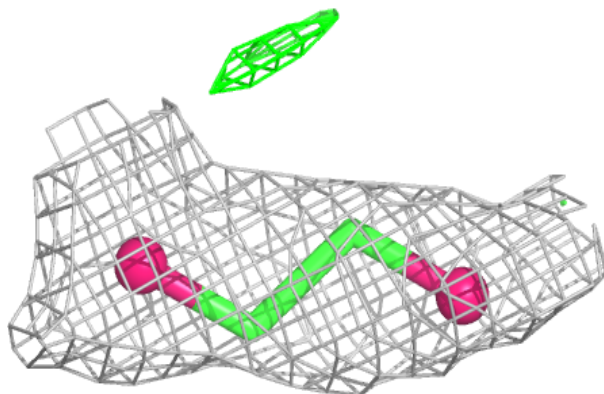


Electron density around EDO A 523:

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)

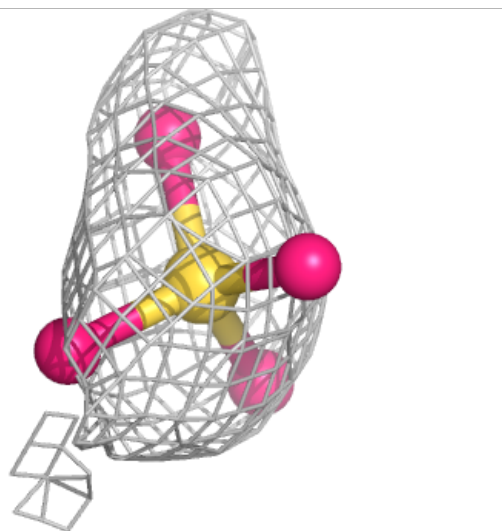
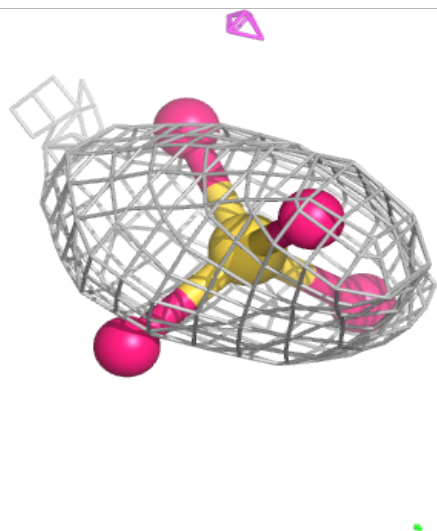
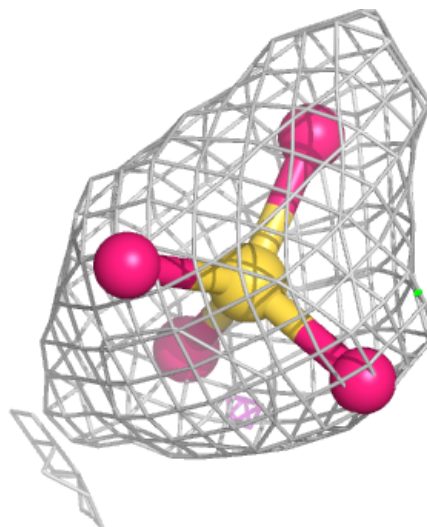
**Electron density around EDO D 519:**

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)



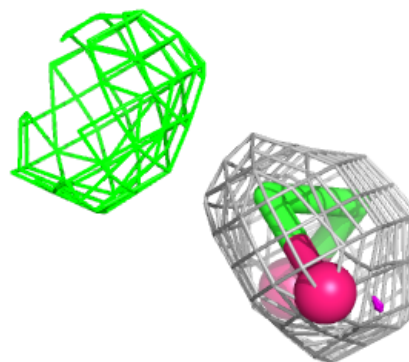
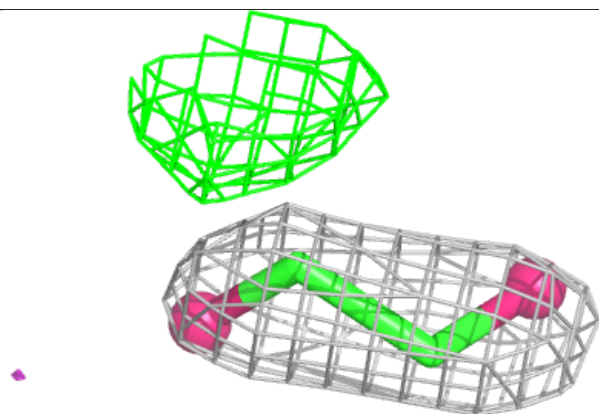
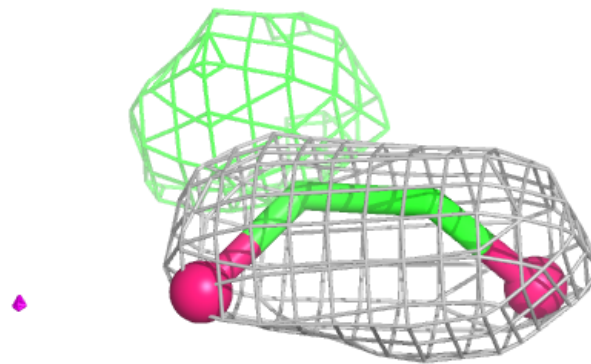
Electron density around SO4 D 508:

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)



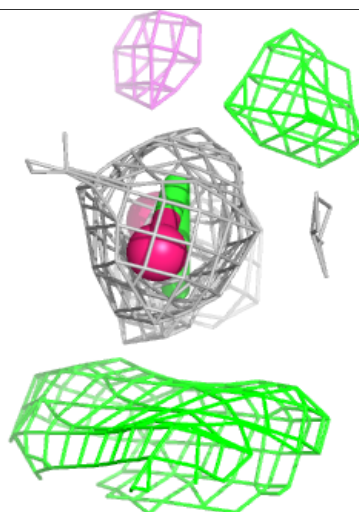
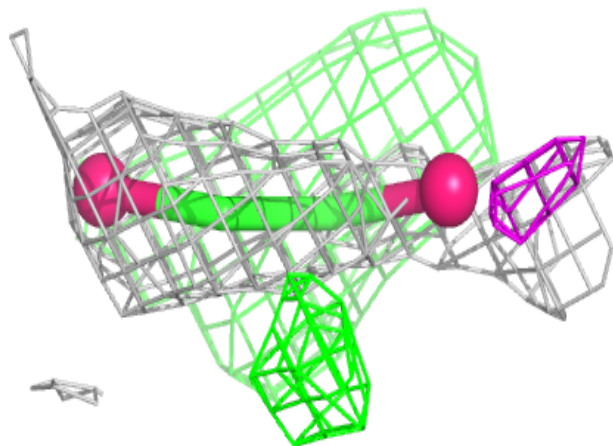
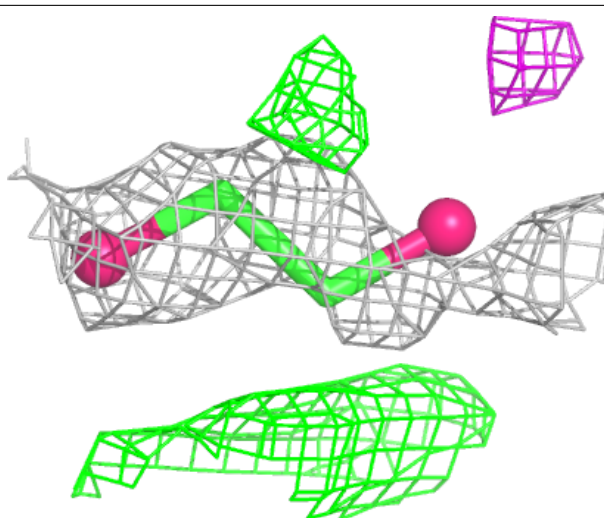
Electron density around EDO B 517:

$2mF_o - DF_c$ (at 0.7 rmsd) in gray
 $mF_o - DF_c$ (at 3 rmsd) in purple (negative)
and green (positive)



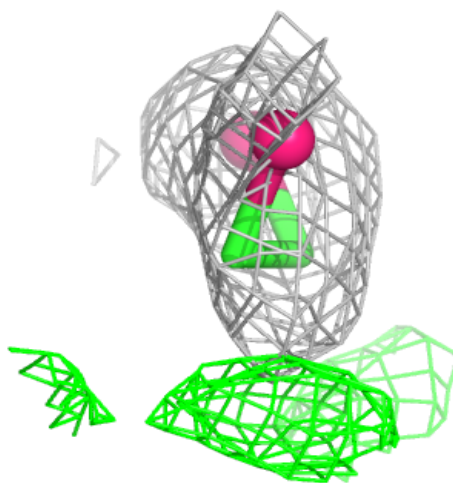
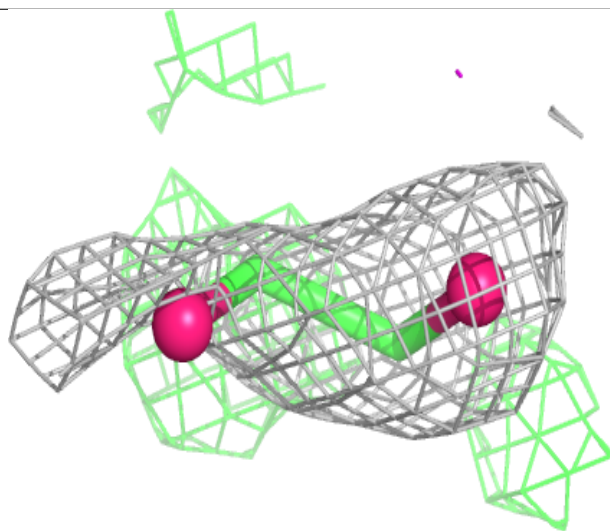
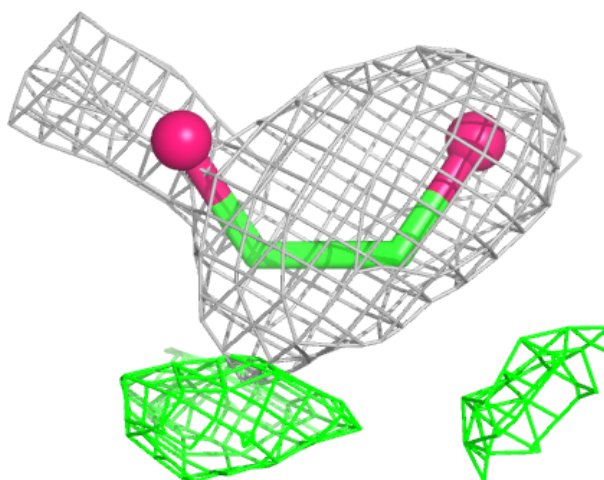
Electron density around EDO B 501:

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)



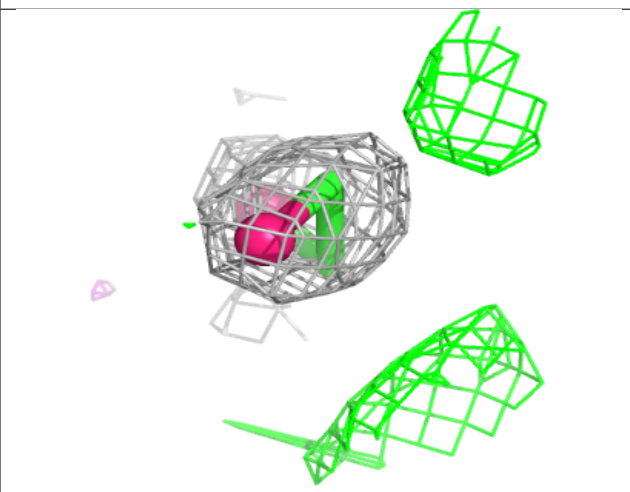
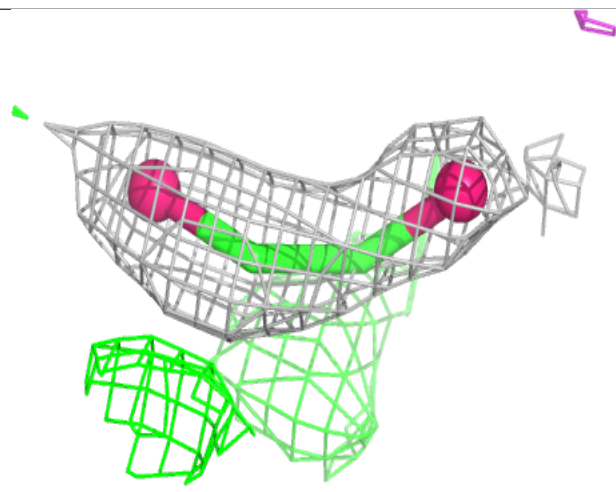
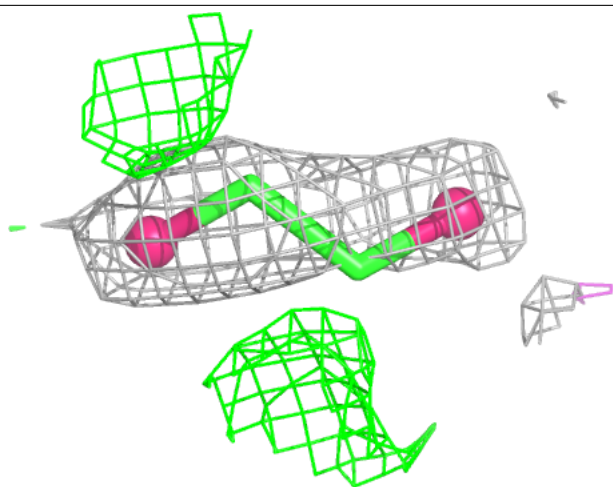
Electron density around EDO A 512:

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)



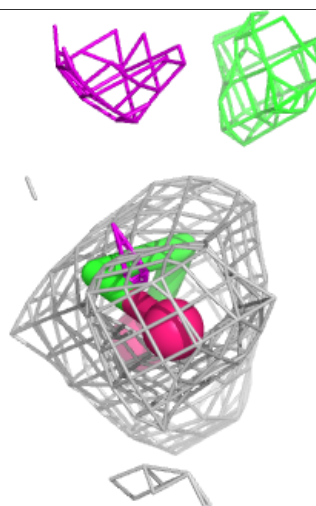
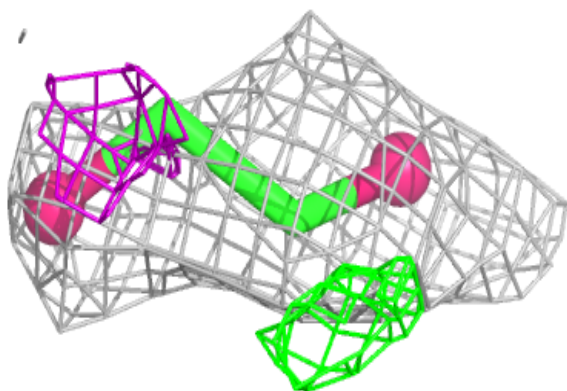
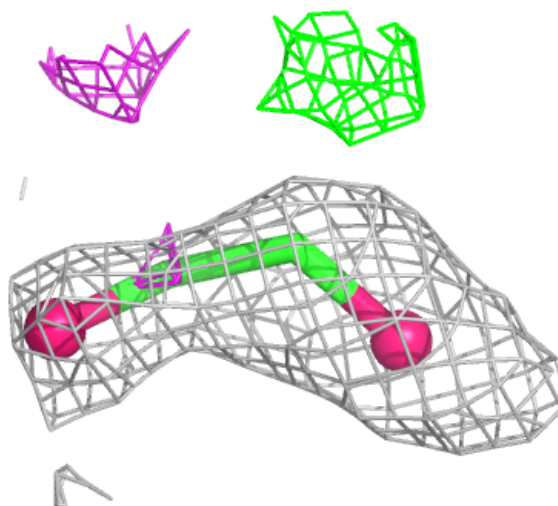
Electron density around EDO D 520:

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)



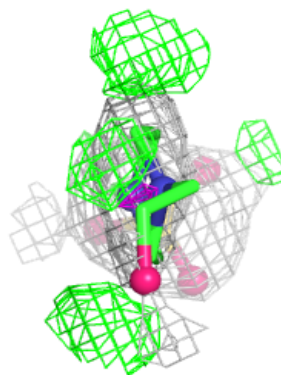
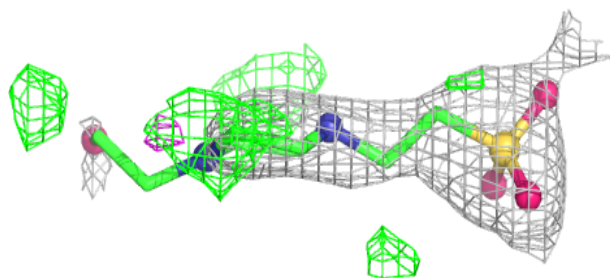
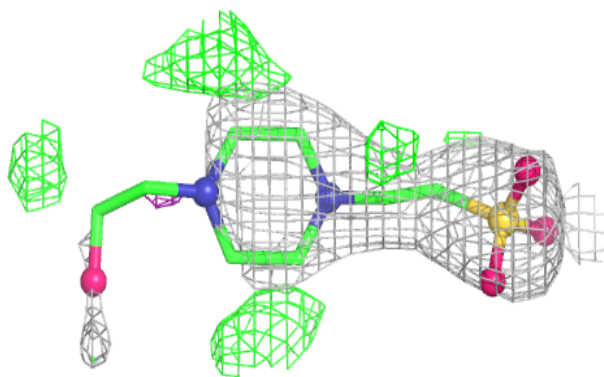
Electron density around EDO D 521:

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)



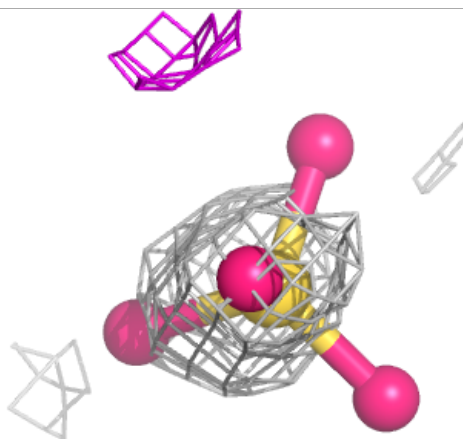
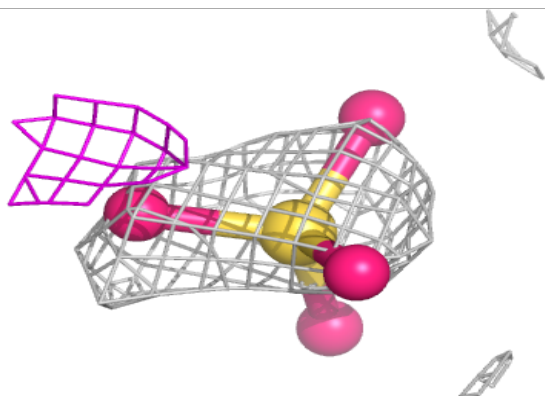
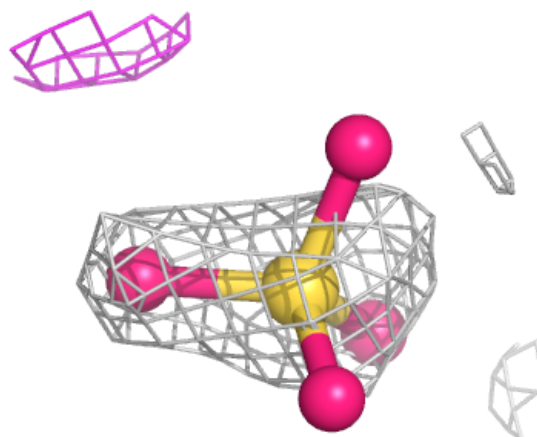
Electron density around EPE B 509:

$2mF_o - DF_c$ (at 0.7 rmsd) in gray
 $mF_o - DF_c$ (at 3 rmsd) in purple (negative)
and green (positive)



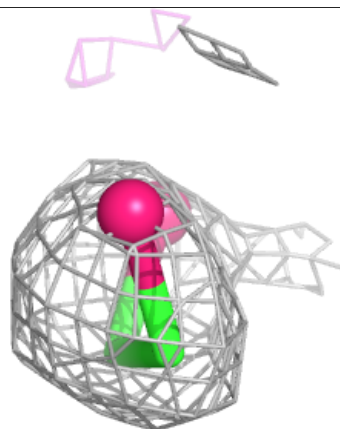
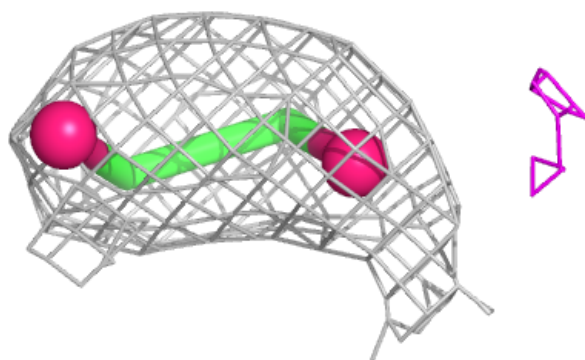
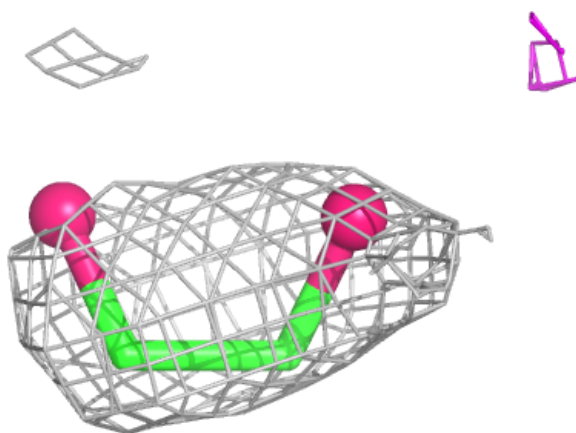
Electron density around SO4 A 507:

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)



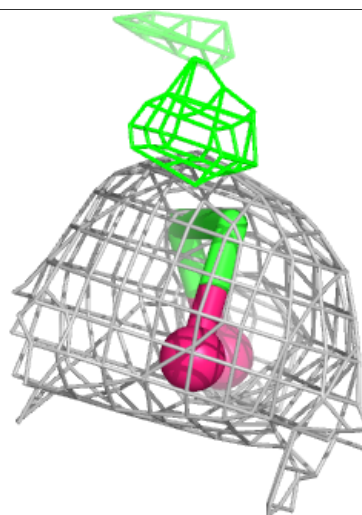
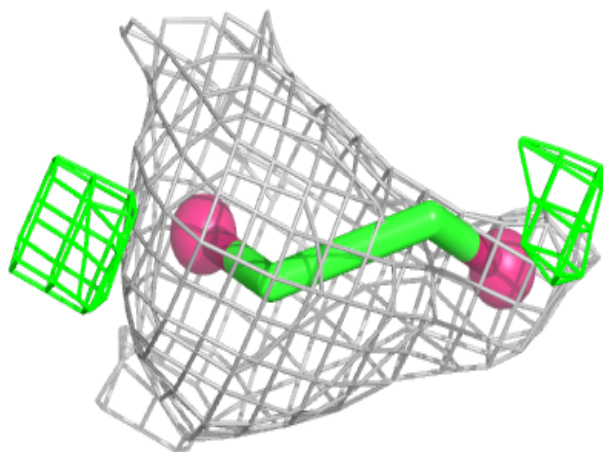
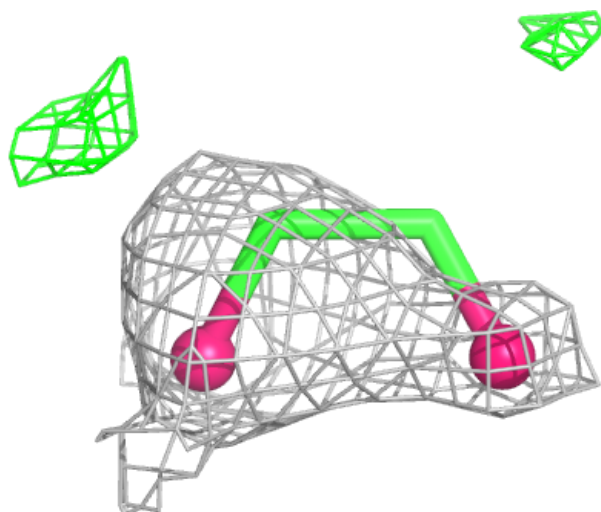
Electron density around EDO A 513:

$2mF_o - DF_c$ (at 0.7 rmsd) in gray
 $mF_o - DF_c$ (at 3 rmsd) in purple (negative)
and green (positive)



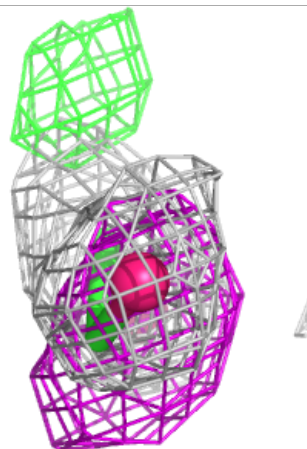
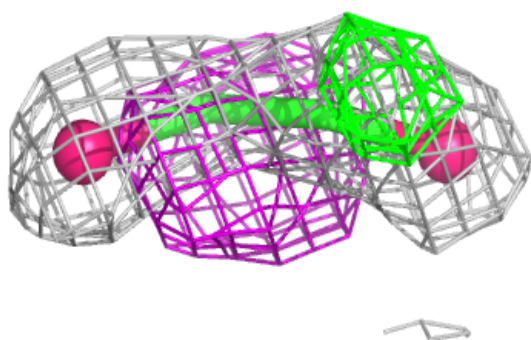
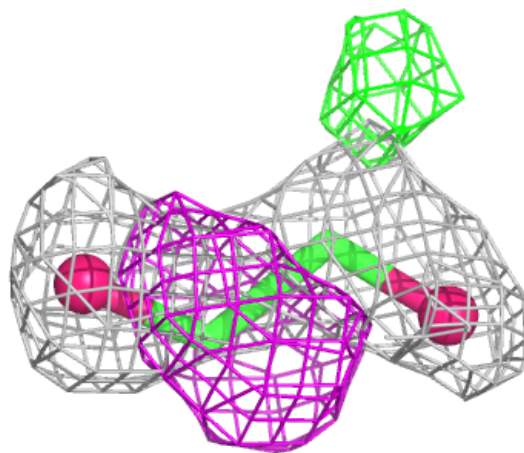
Electron density around EDO C 513:

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)



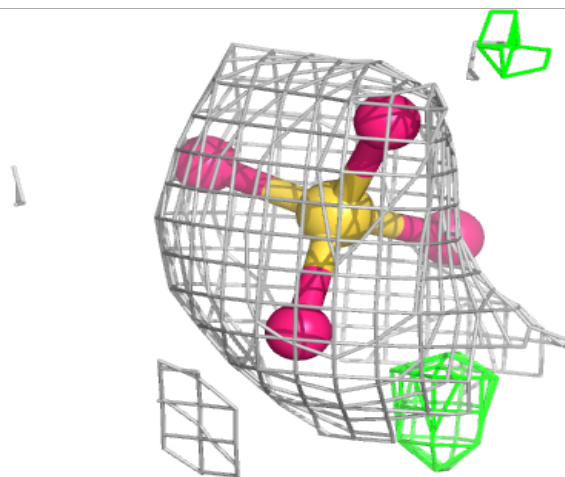
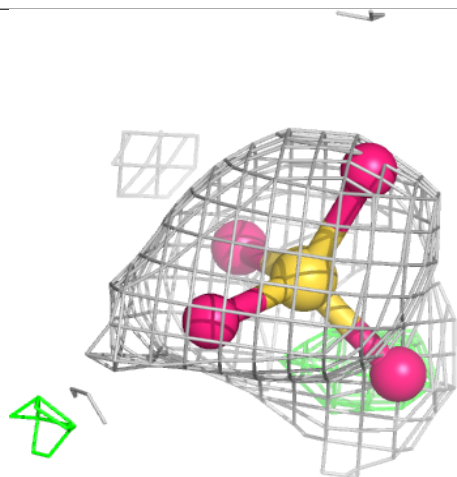
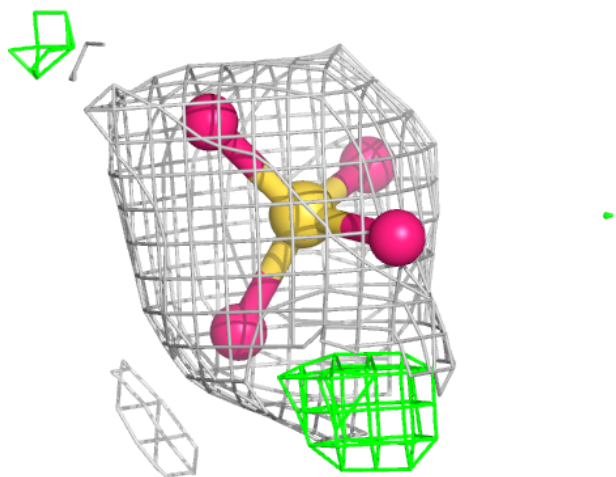
Electron density around EDO A 521:

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)



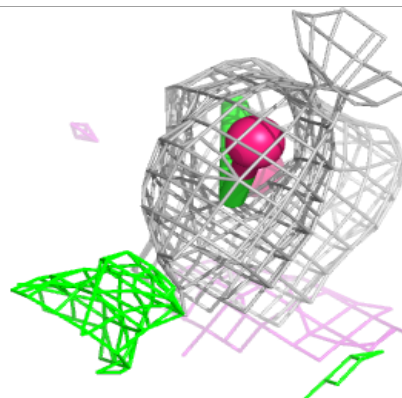
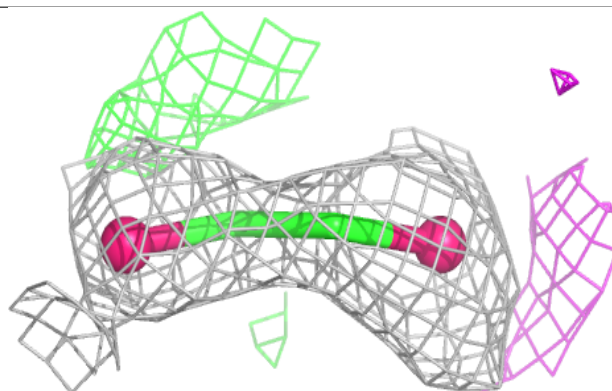
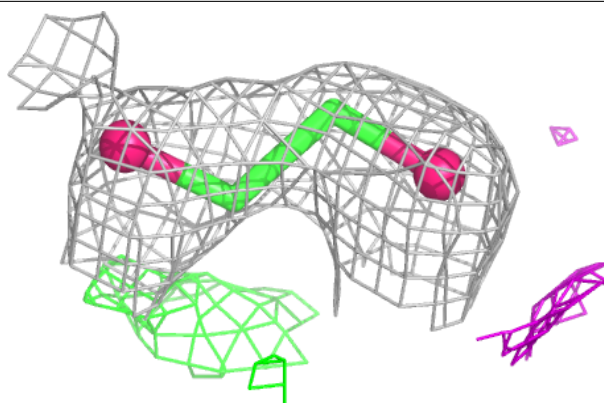
Electron density around SO4 B 508:

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)

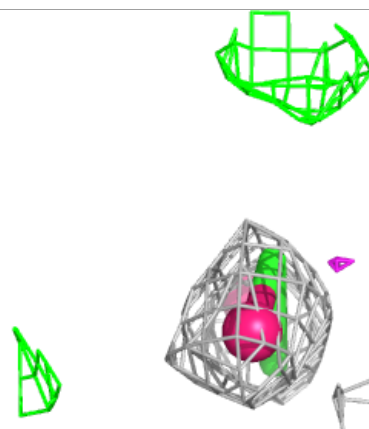
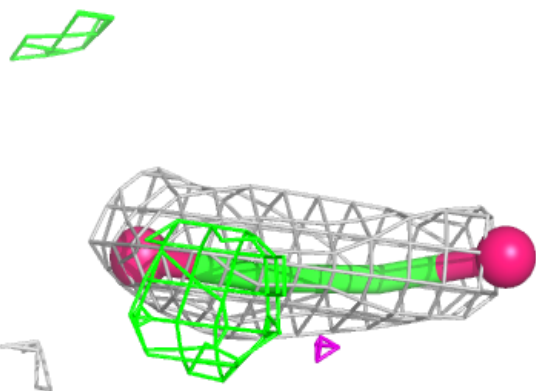
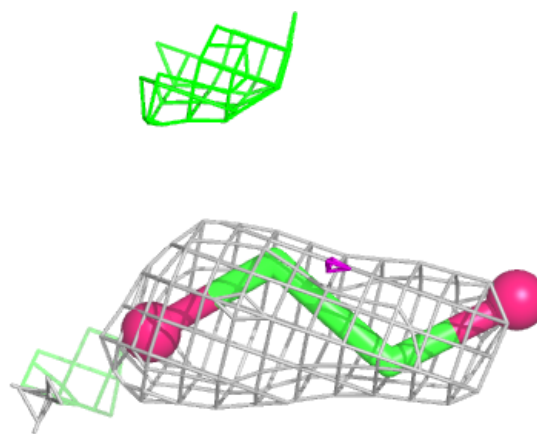


Electron density around EDO A 511:

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)

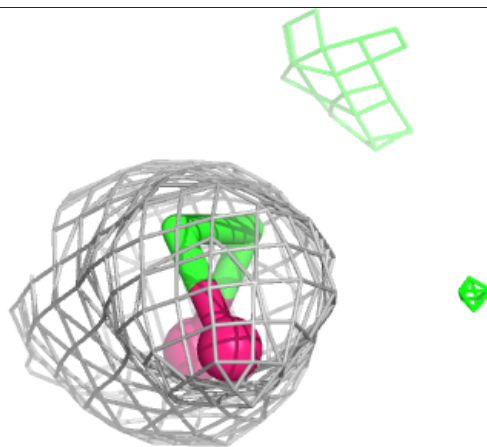
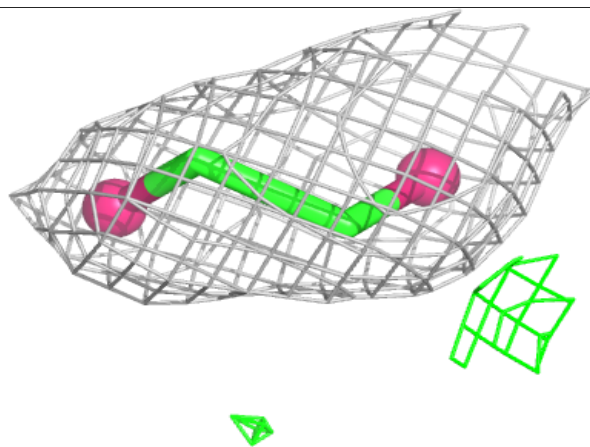
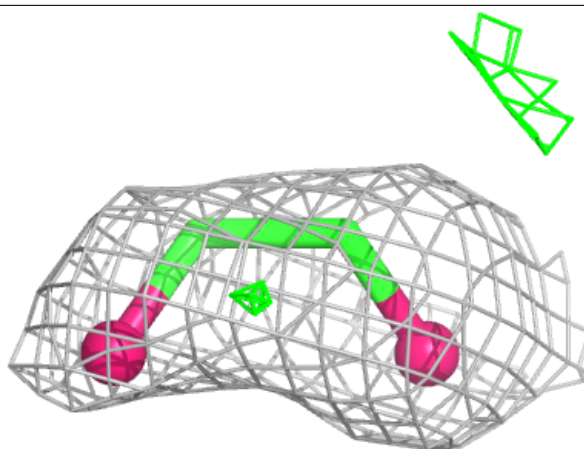
**Electron density around EDO A 518:**

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)



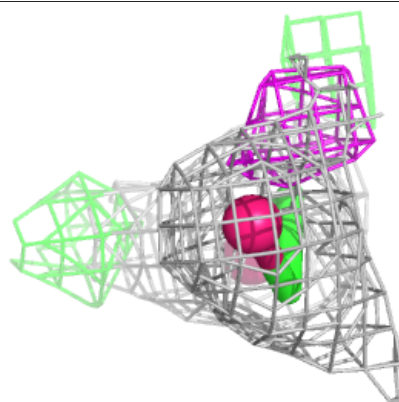
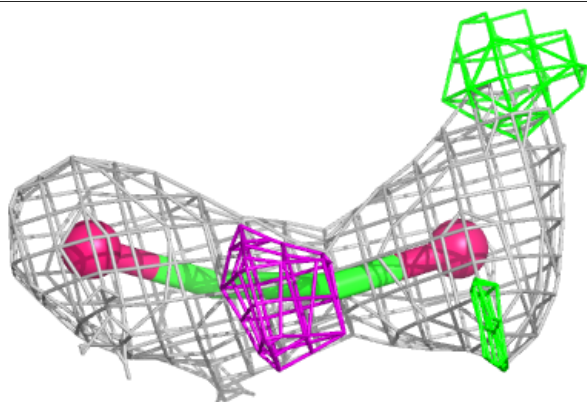
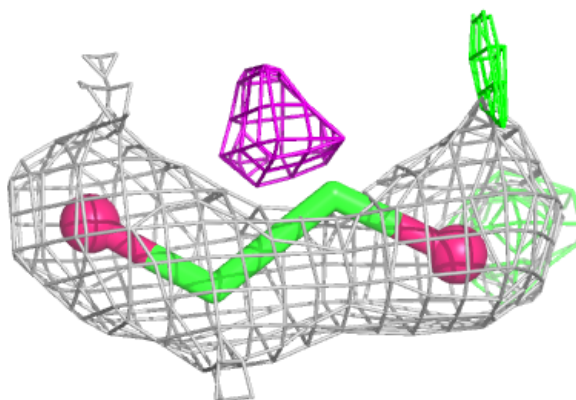
Electron density around EDO B 514:

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)

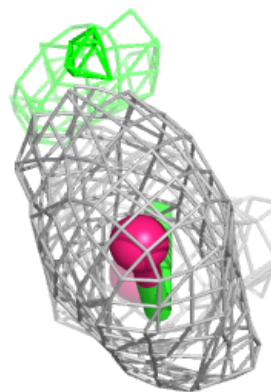
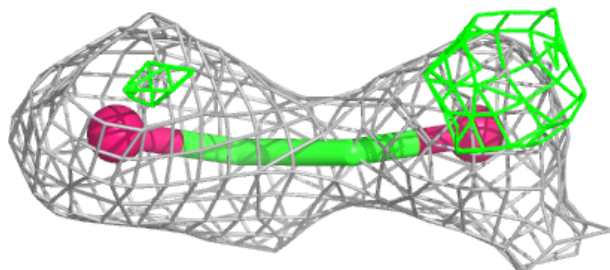
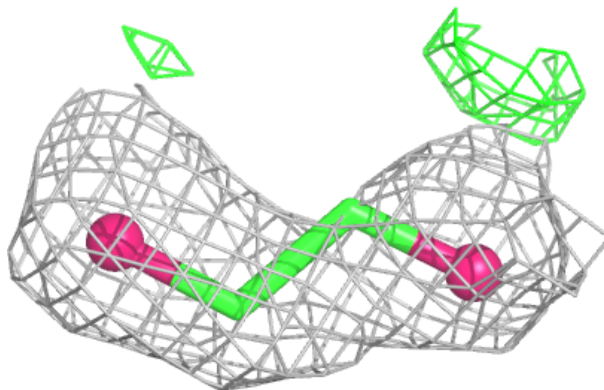


Electron density around EDO A 514:

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)

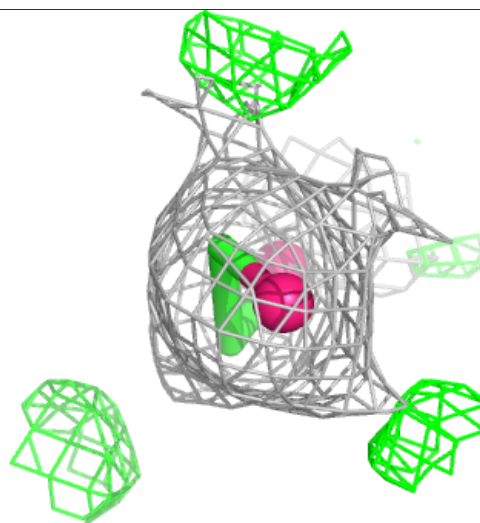
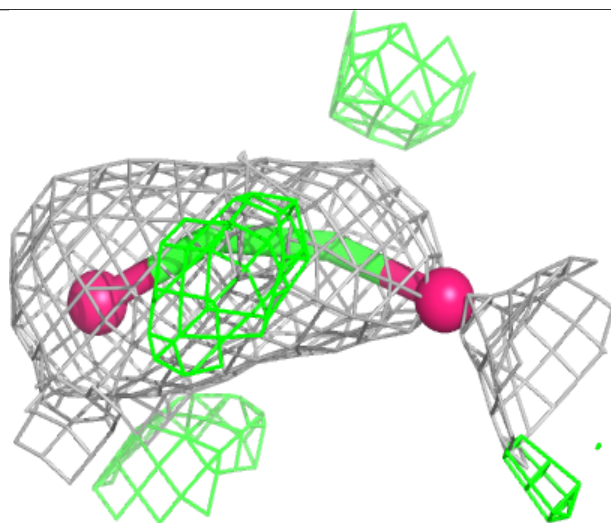
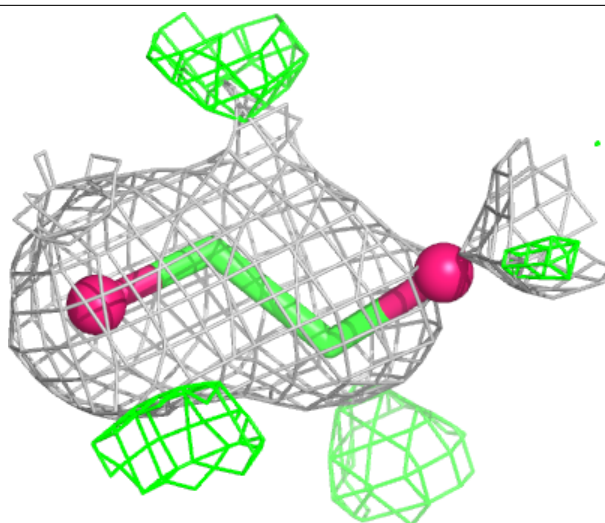
**Electron density around EDO B 525:**

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)



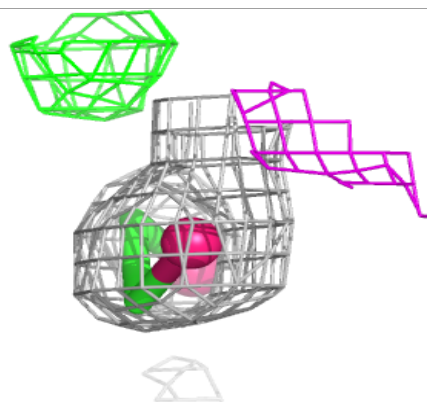
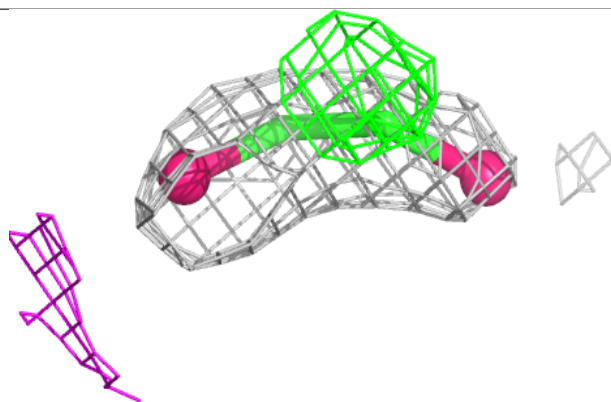
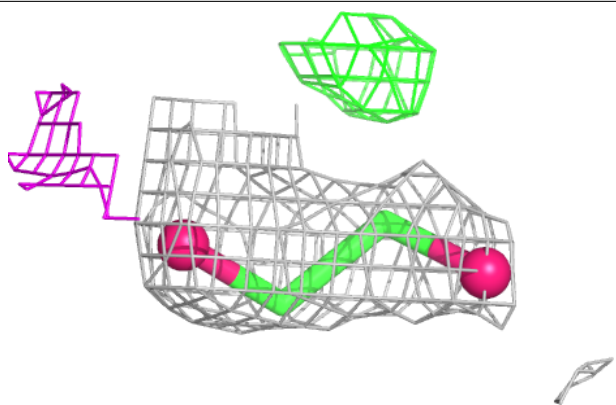
Electron density around EDO B 520:

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)

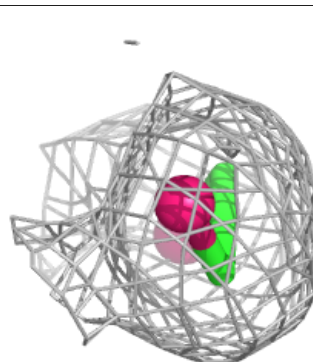
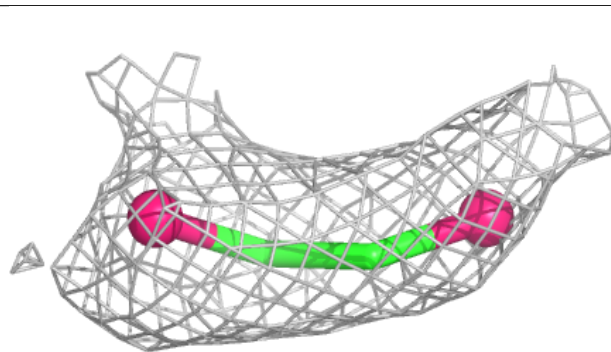
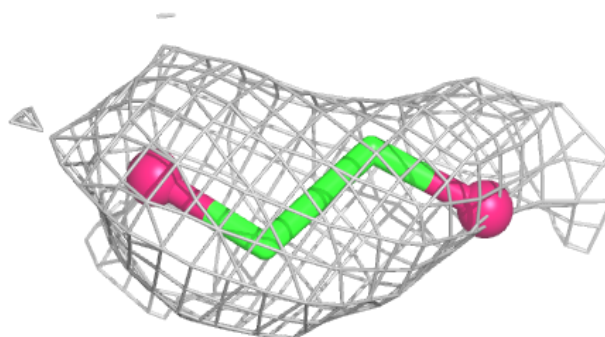


Electron density around EDO C 521:

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)

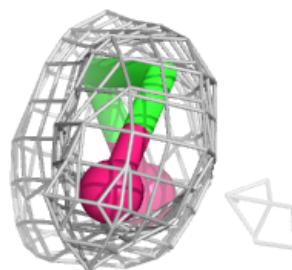
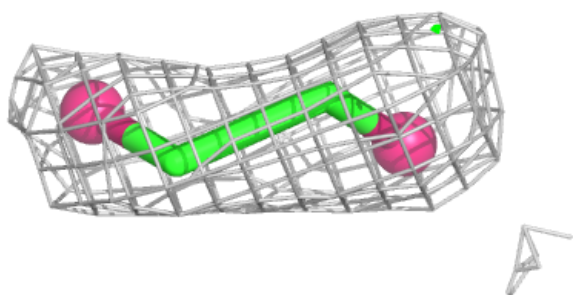
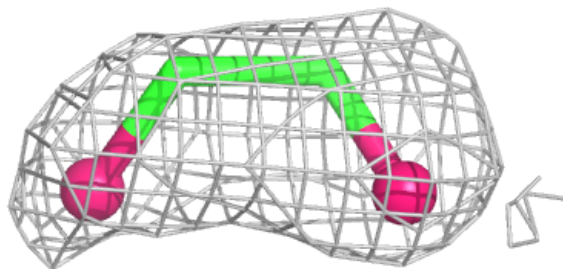
**Electron density around EDO D 513:**

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)

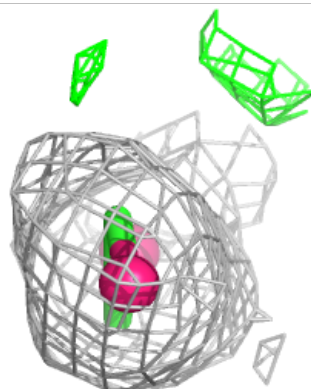
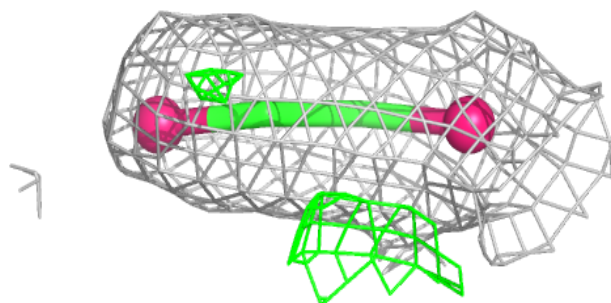
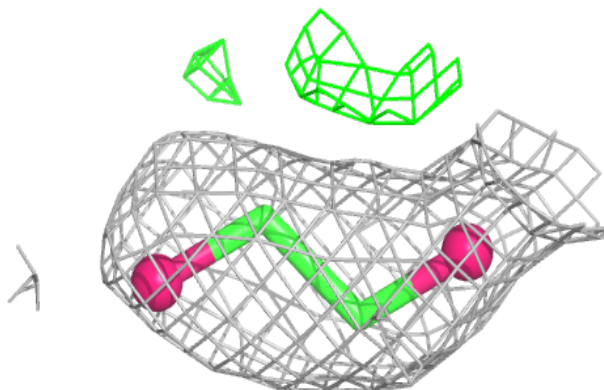


Electron density around EDO B 522:

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)

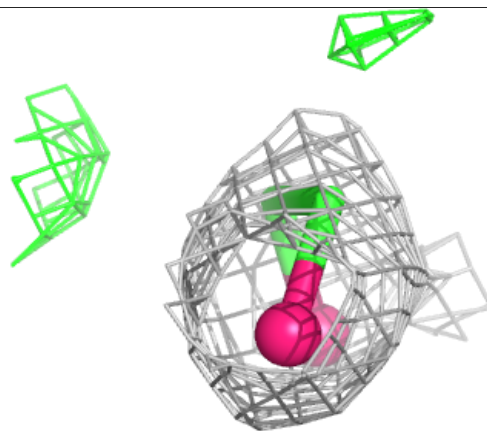
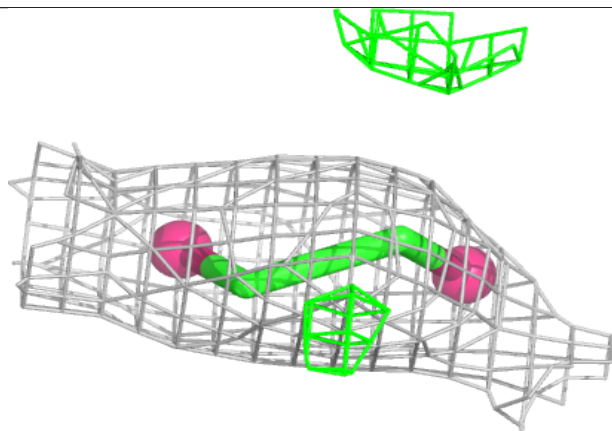
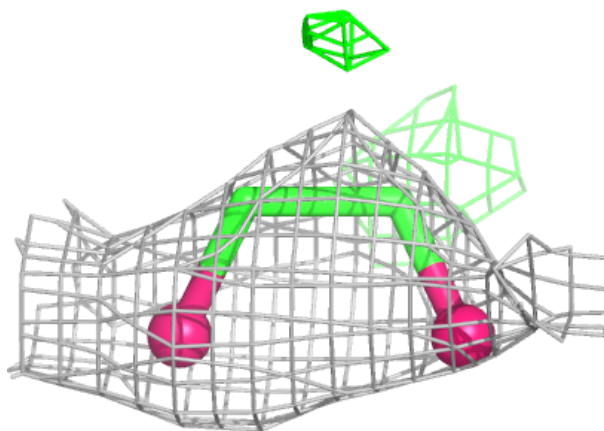
**Electron density around EDO A 517:**

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)



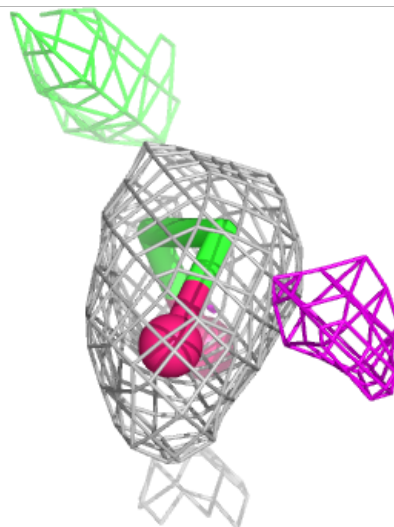
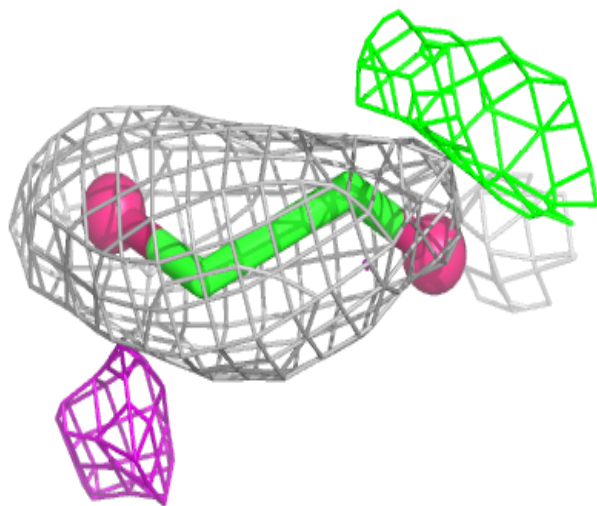
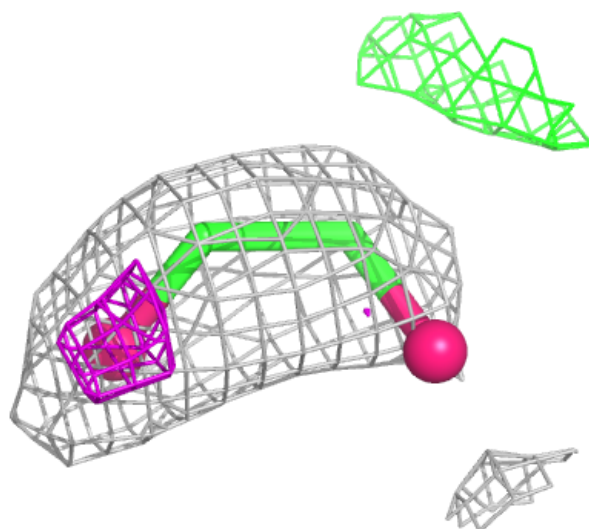
Electron density around EDO D 510:

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)



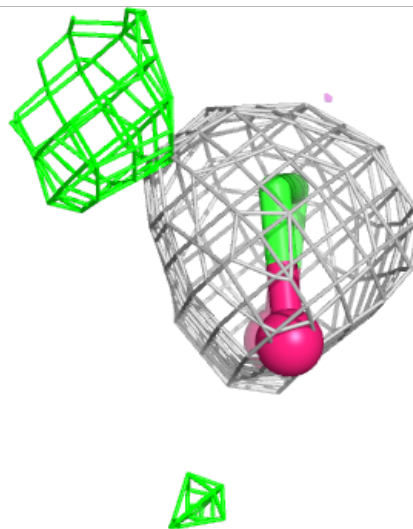
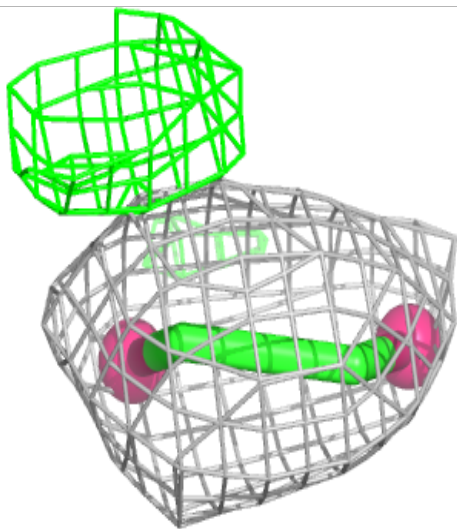
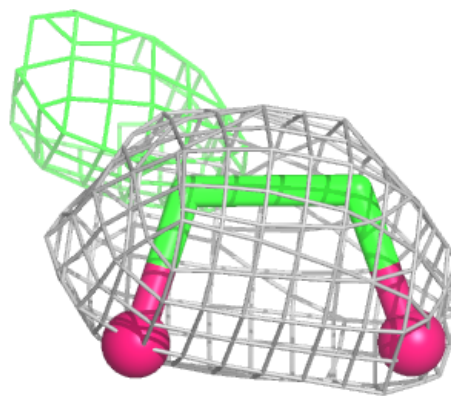
Electron density around EDO A 519:

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)



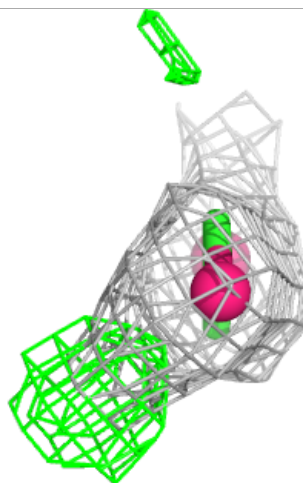
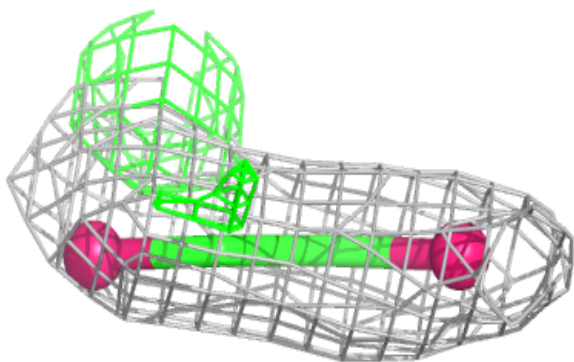
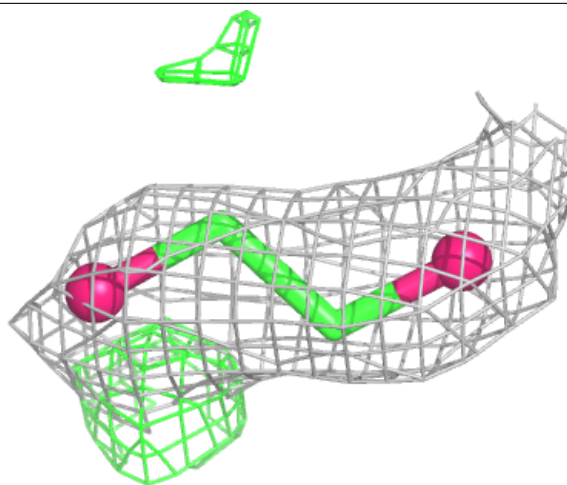
Electron density around EDO C 511:

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)



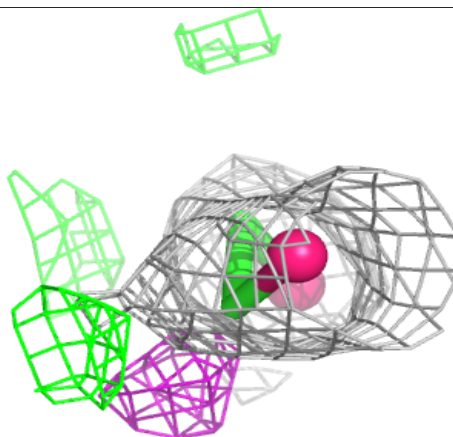
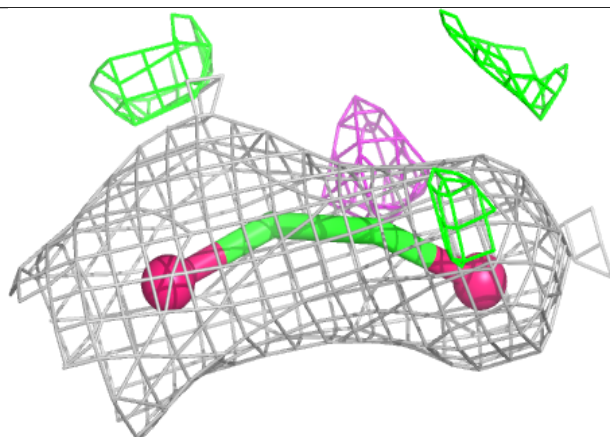
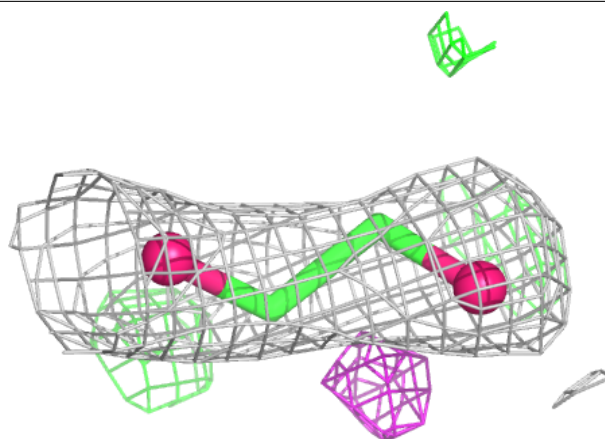
Electron density around EDO C 512:

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)



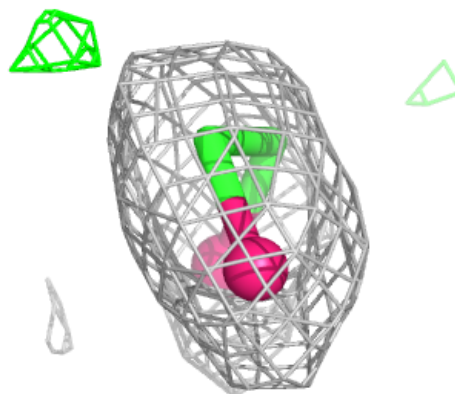
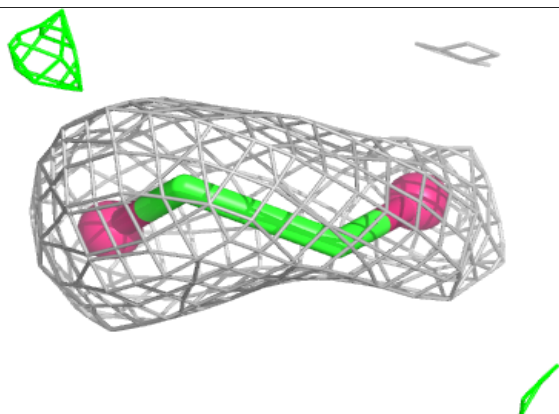
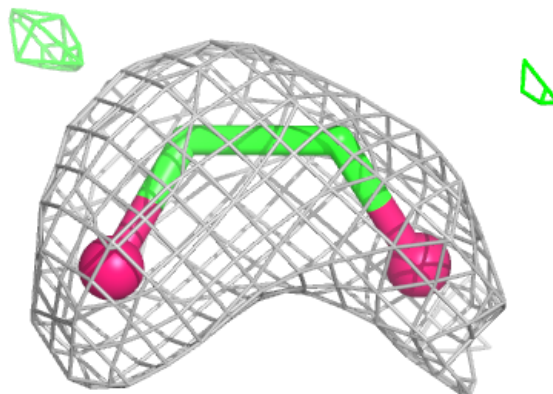
Electron density around EDO A 524:

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)

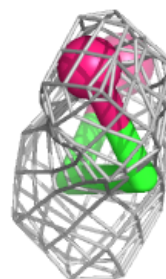
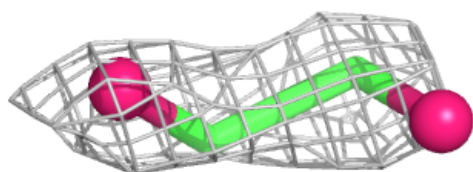
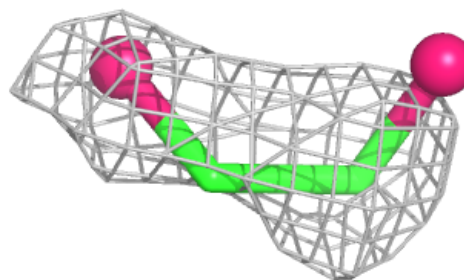


Electron density around EDO C 515:

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)

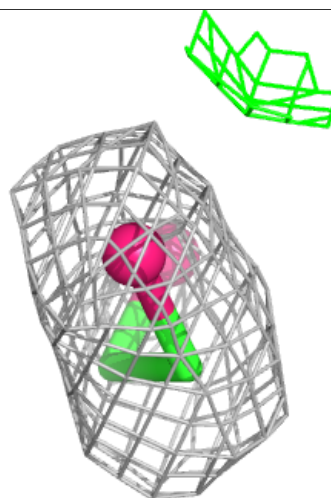
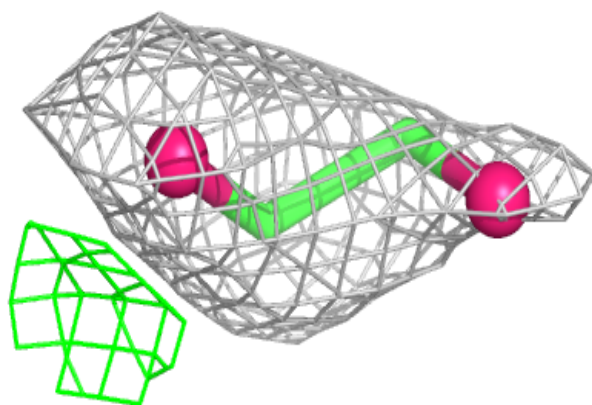
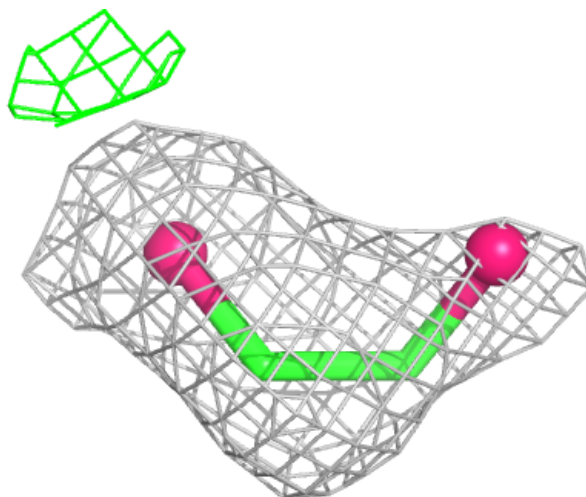
**Electron density around EDO C 516:**

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)



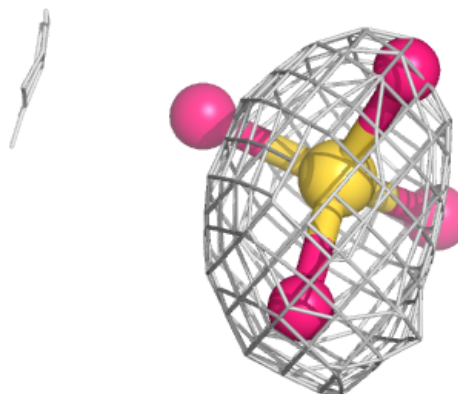
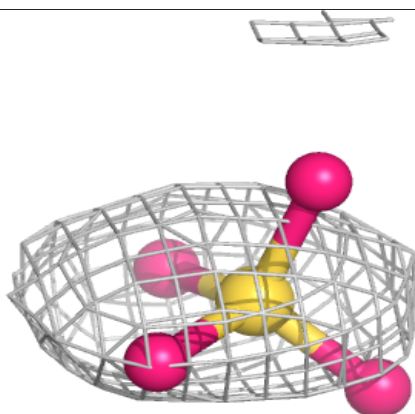
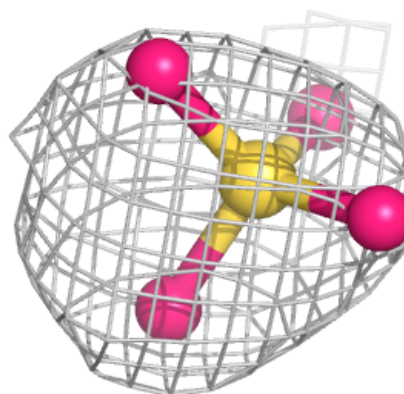
Electron density around EDO B 519:

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)

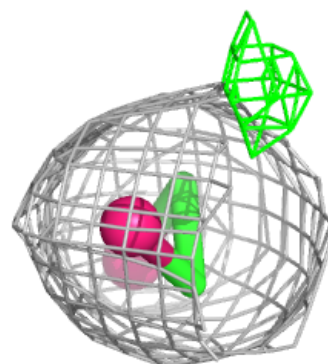
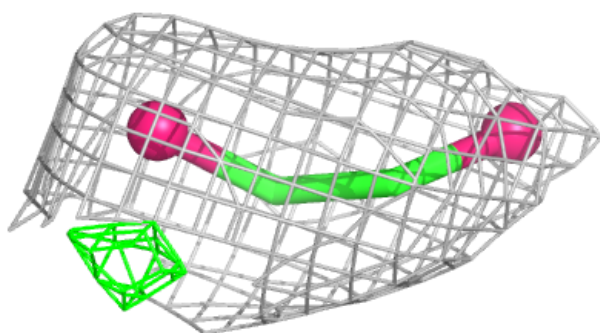
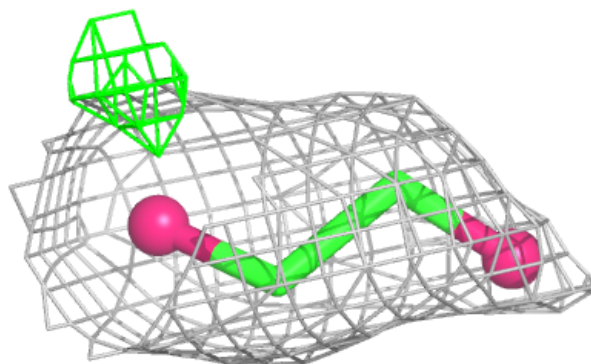


Electron density around SO4 A 508:

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)

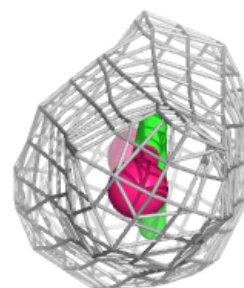
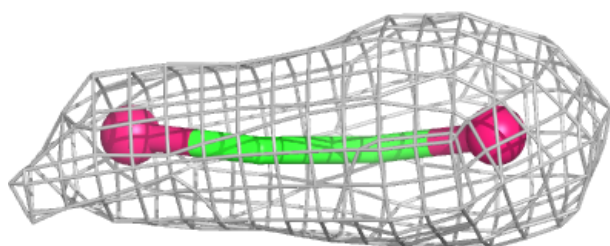
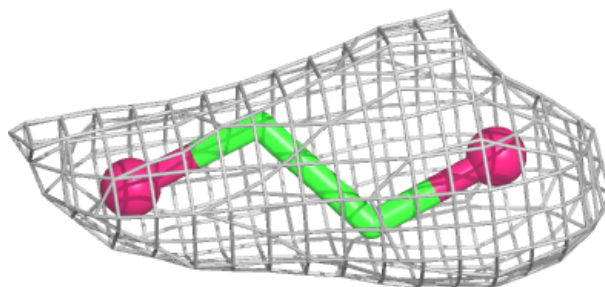
**Electron density around EDO D 511:**

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)



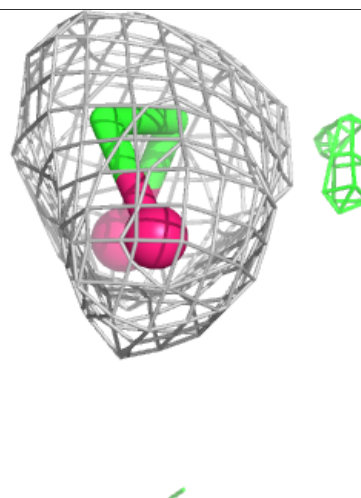
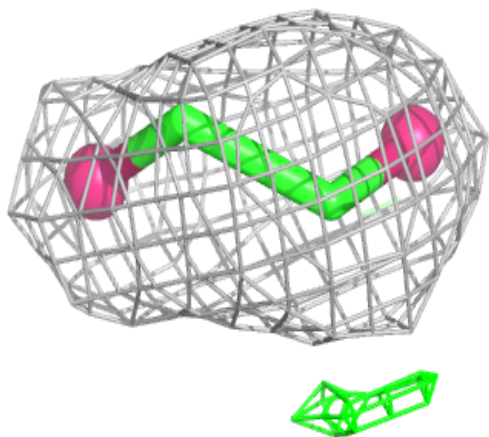
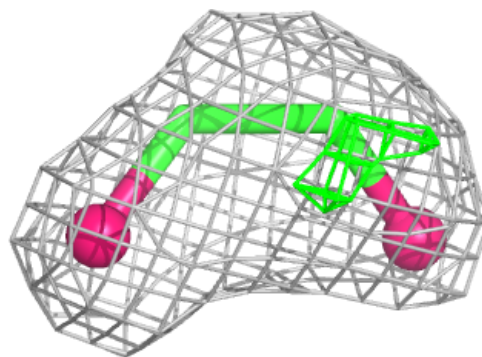
Electron density around EDO C 519:

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)



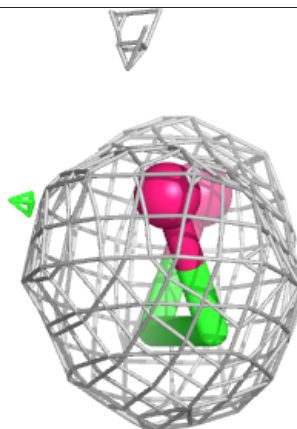
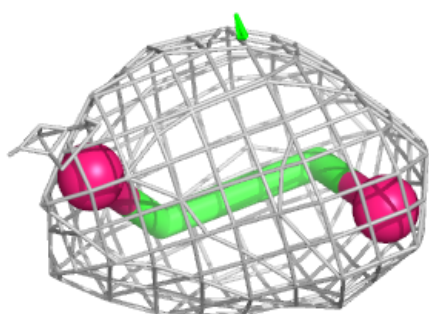
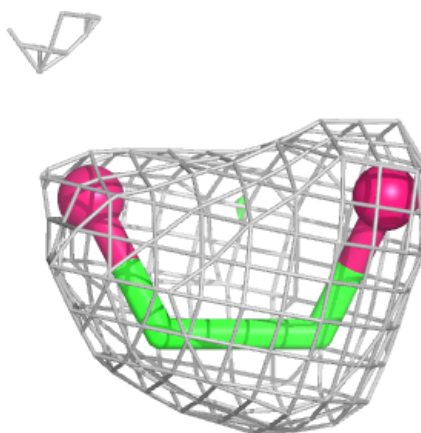
Electron density around EDO D 514:

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)

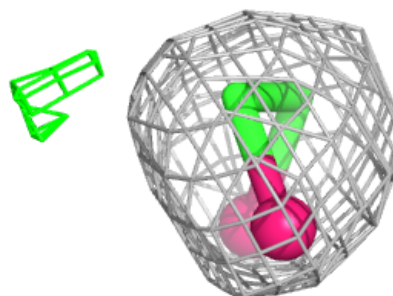
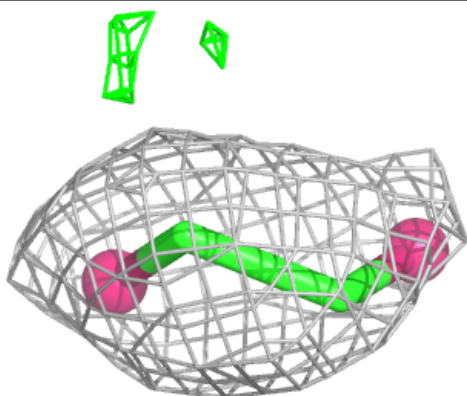
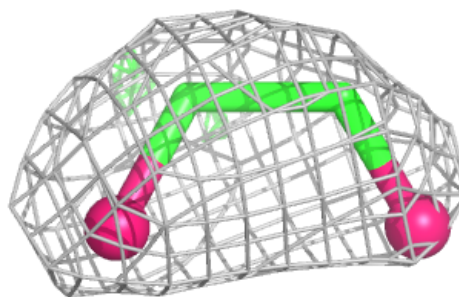


Electron density around EDO A 516:

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)

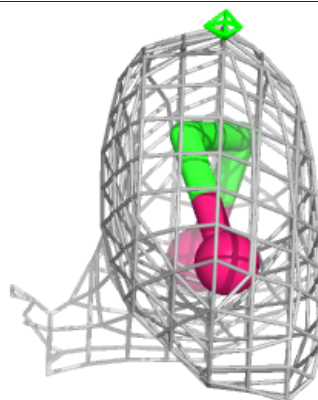
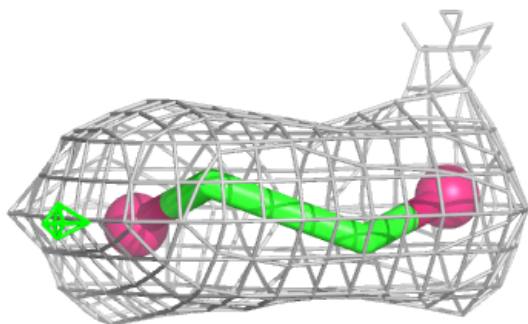
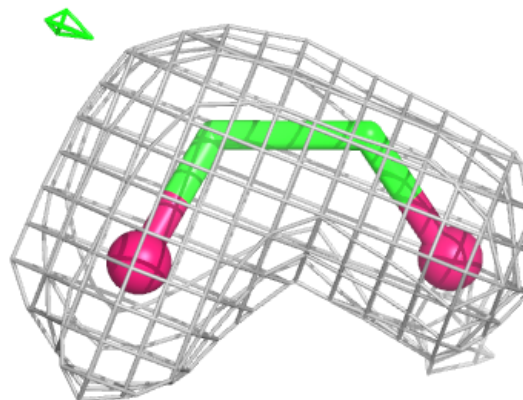
**Electron density around EDO A 515:**

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)

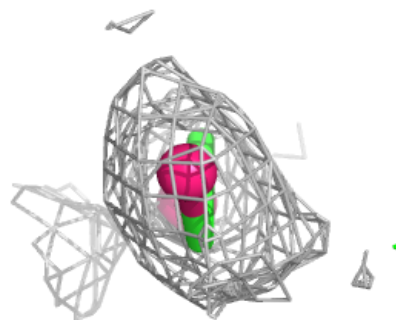
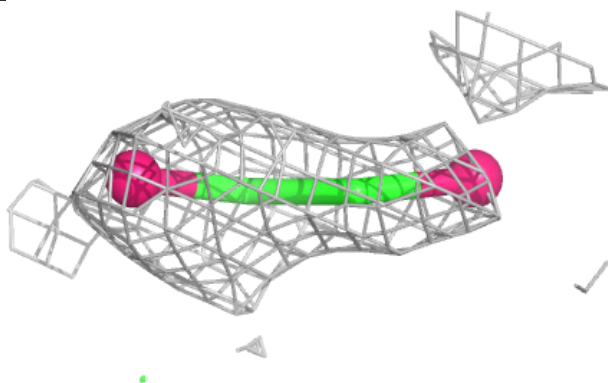
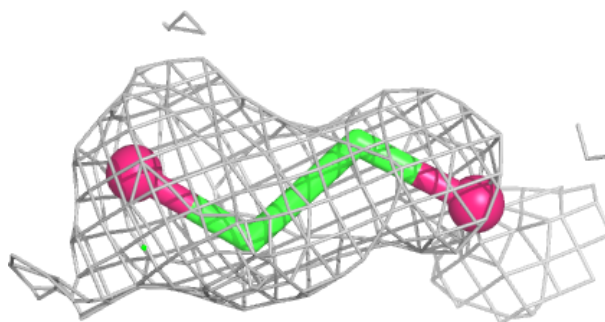


Electron density around EDO A 525:

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)

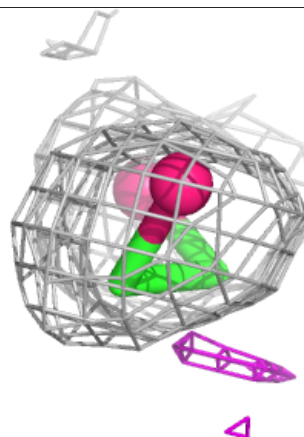
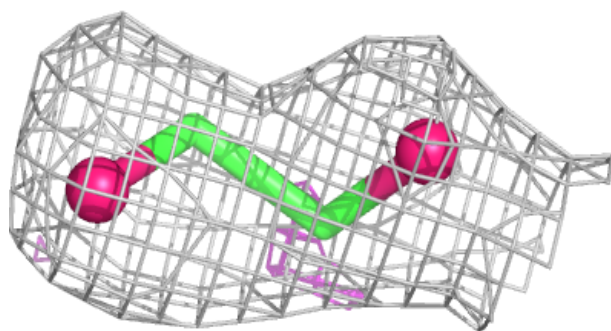
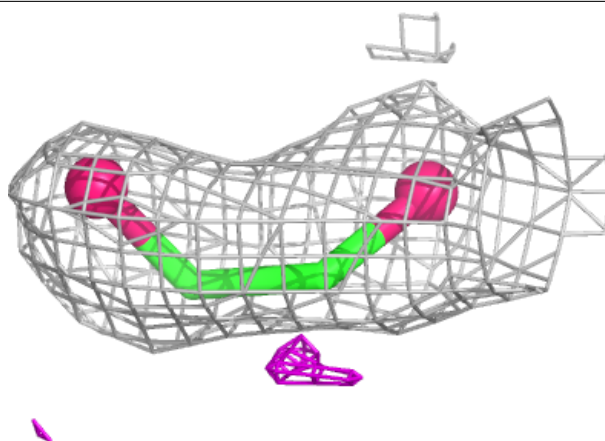
**Electron density around EDO B 521:**

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)



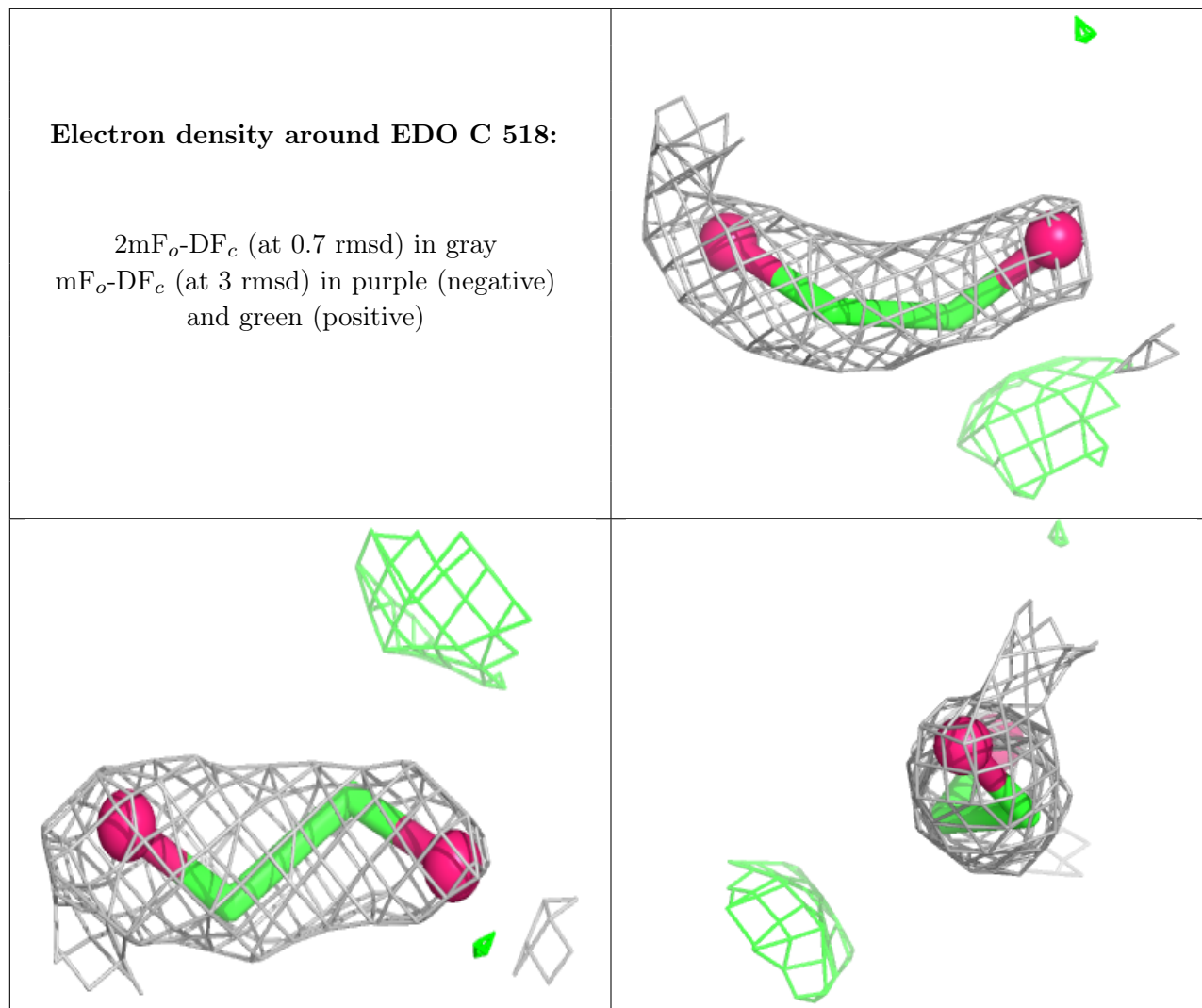
Electron density around EDO B 513:

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)



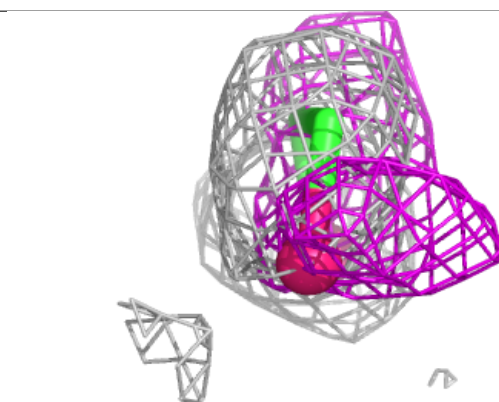
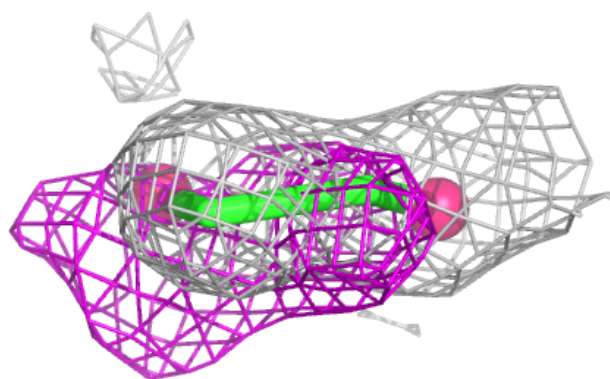
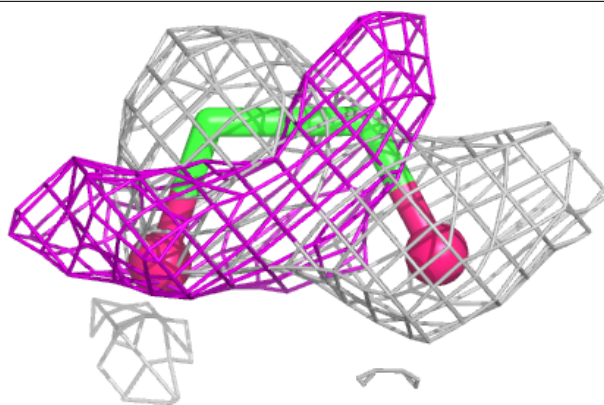
Electron density around EDO C 518:

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)

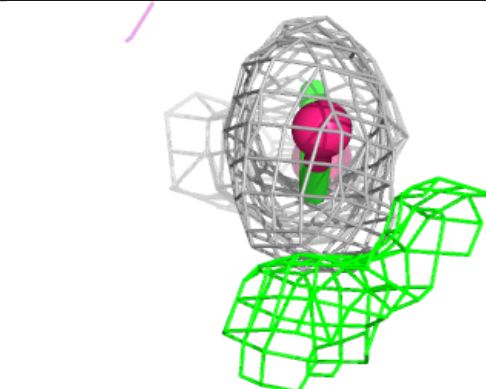
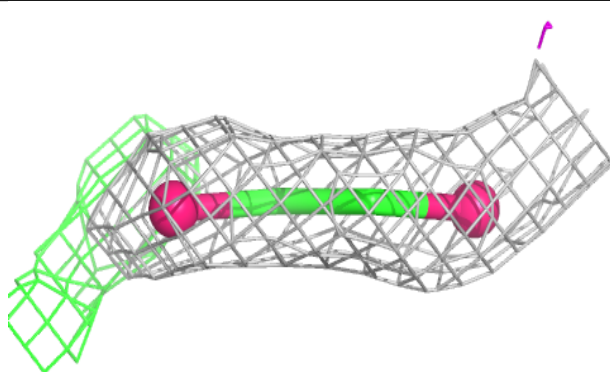
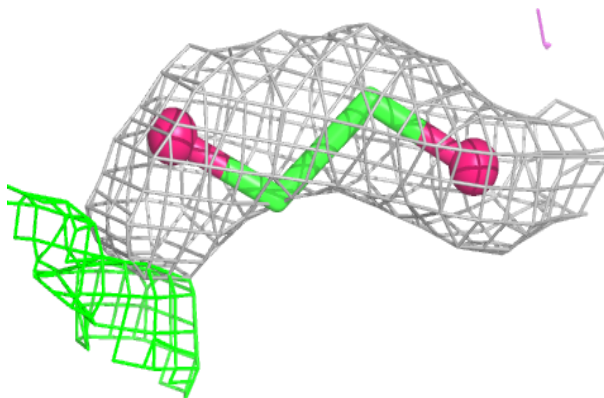


Electron density around EDO B 523:

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)

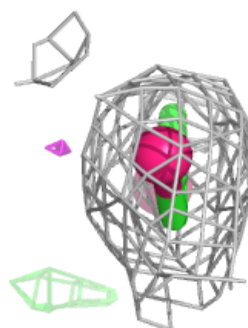
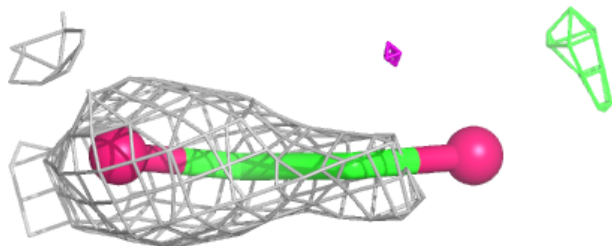
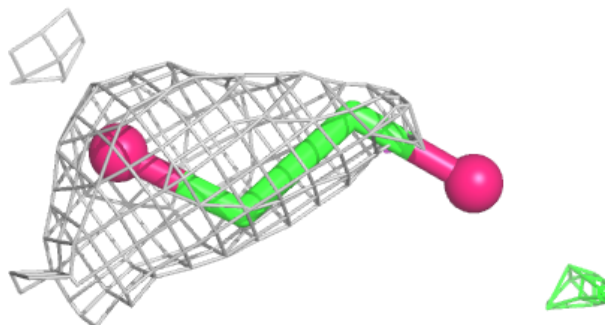
**Electron density around EDO B 516:**

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)

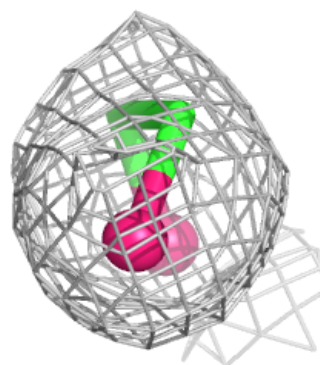
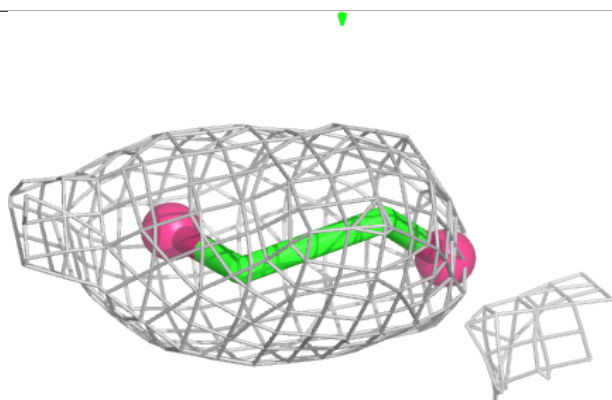
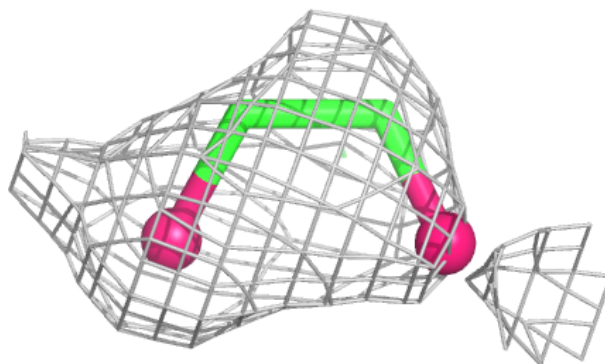


Electron density around EDO A 510:

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)

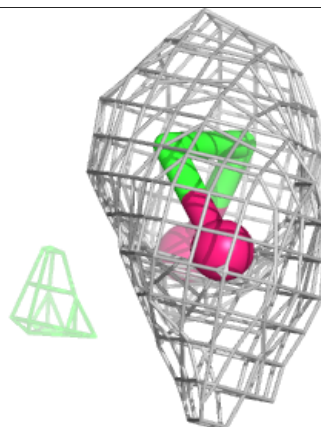
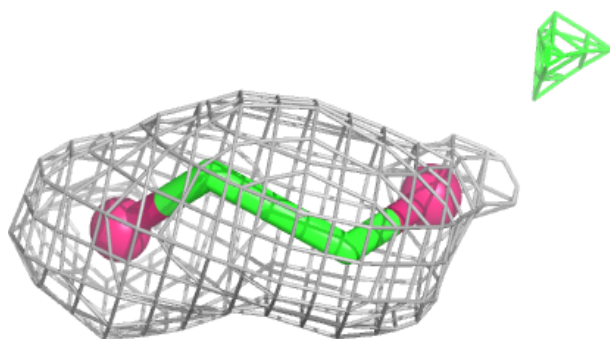
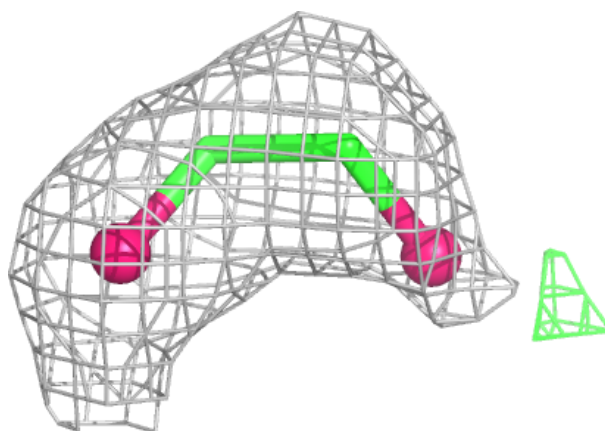
**Electron density around EDO B 511:**

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)

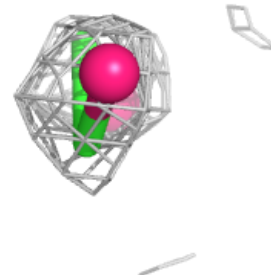
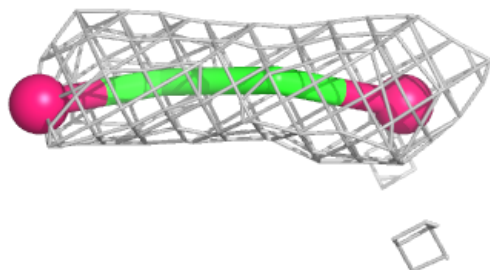
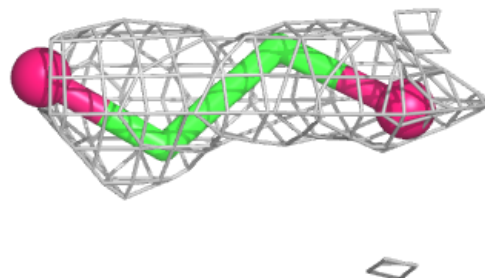


Electron density around EDO A 509:

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)

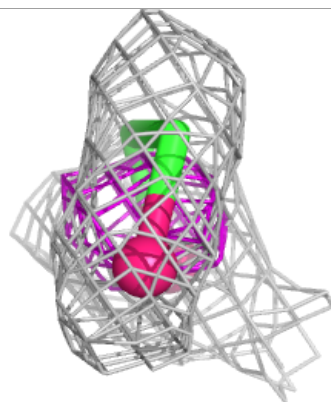
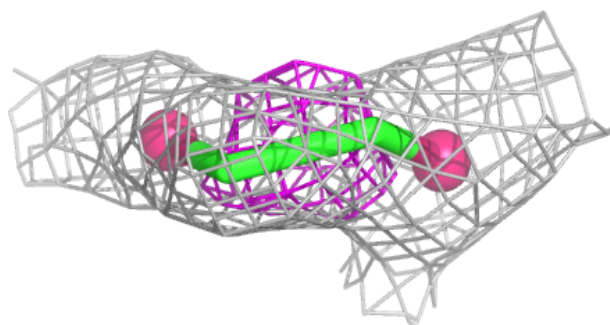
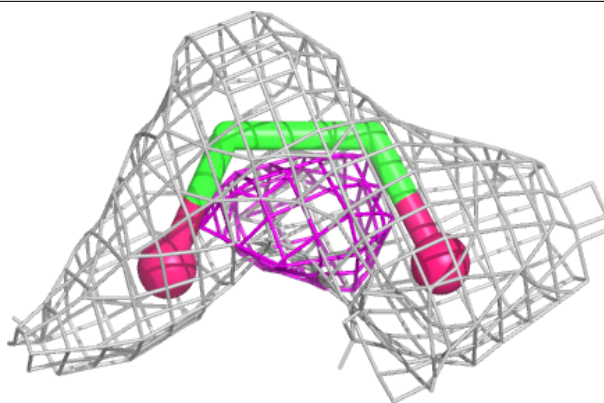
**Electron density around EDO D 516:**

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)

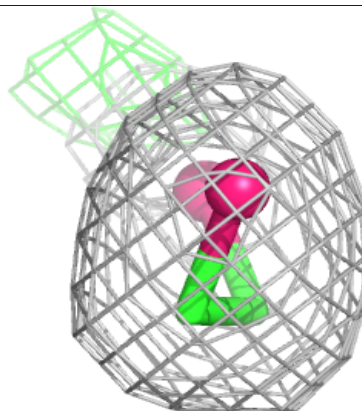
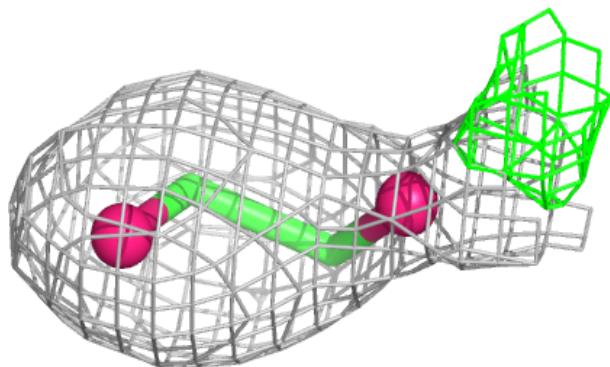
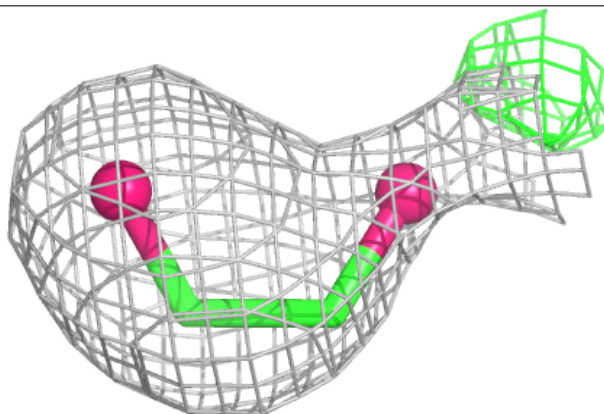


Electron density around EDO D 517:

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)

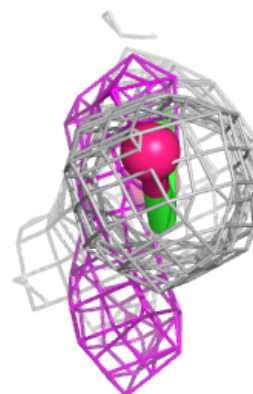
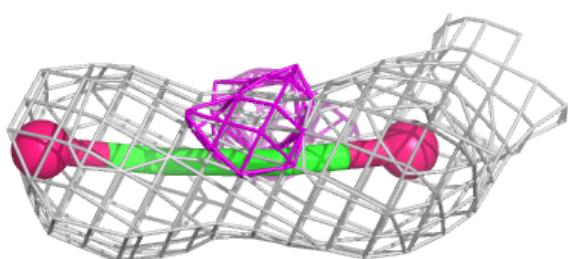
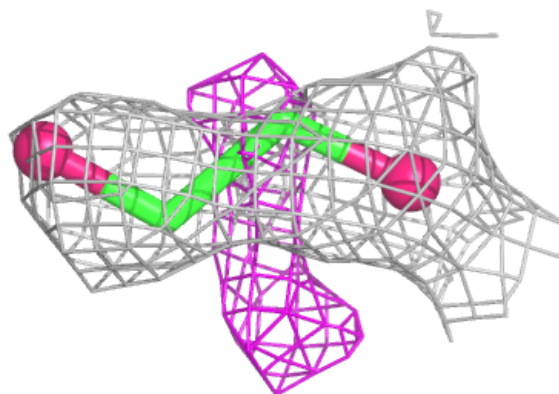
**Electron density around EDO C 501:**

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)

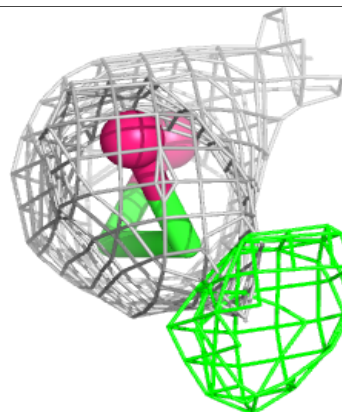
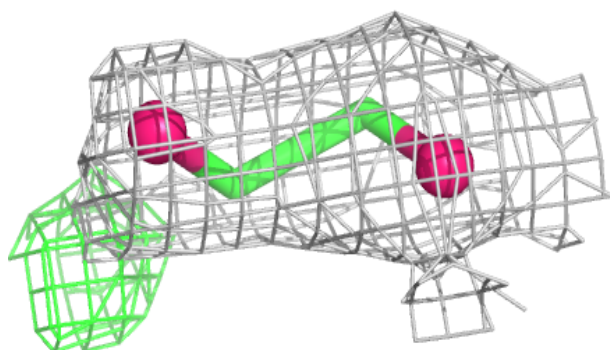
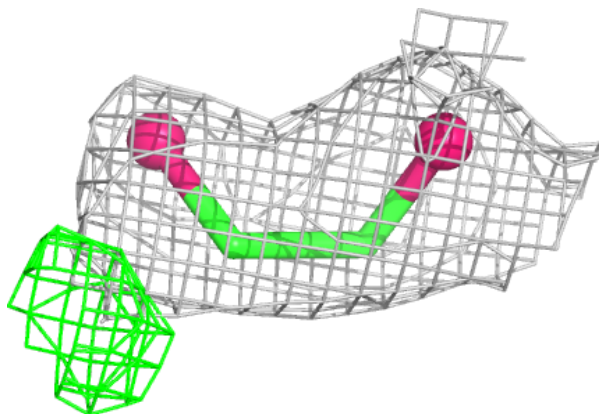


Electron density around EDO A 527:

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)

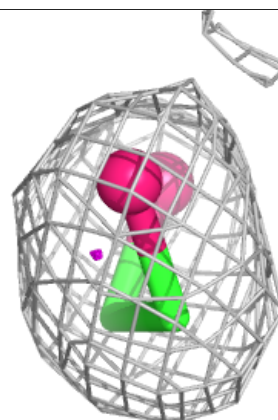
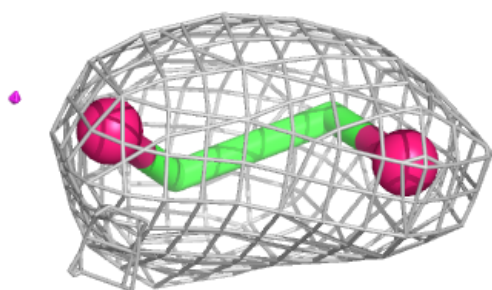
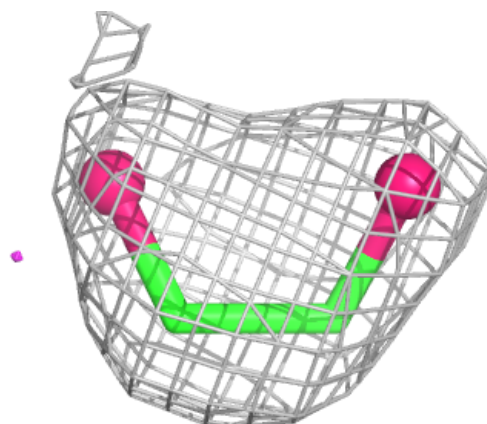
**Electron density around EDO D 509:**

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)

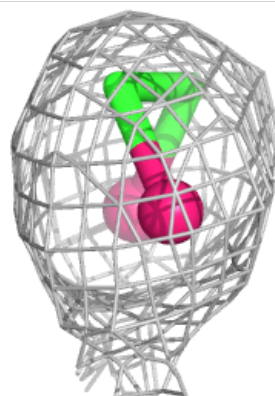
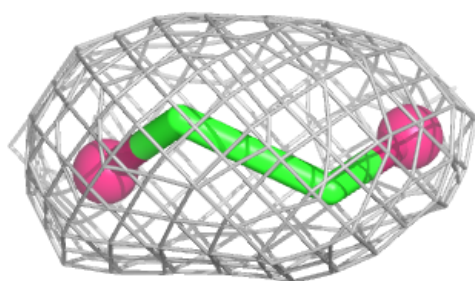
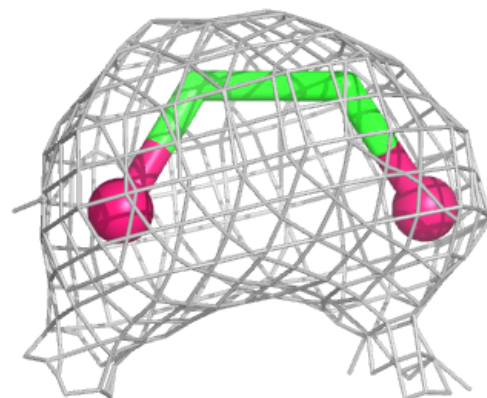


Electron density around EDO B 515:

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)

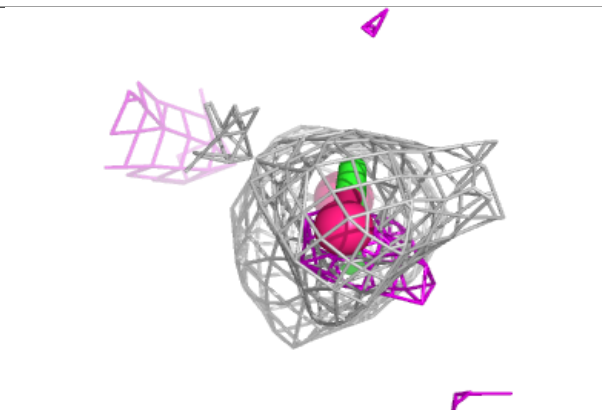
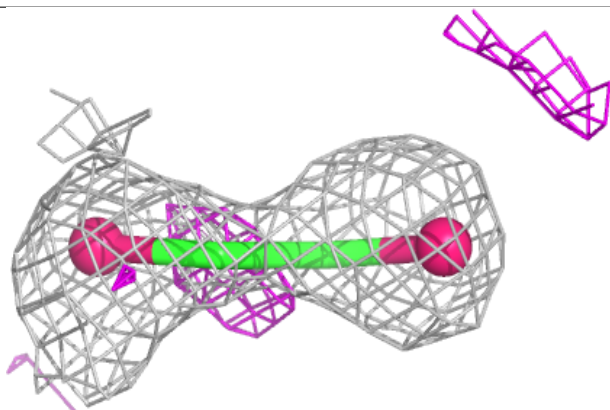
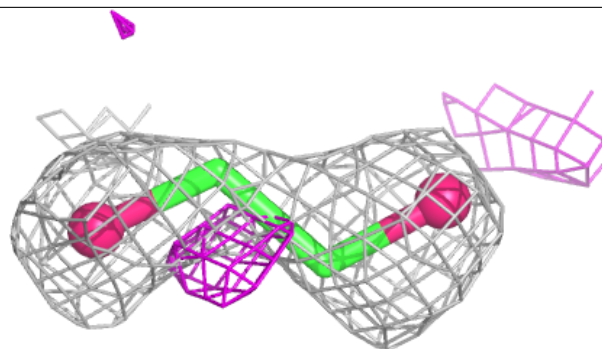
**Electron density around EDO D 501:**

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)

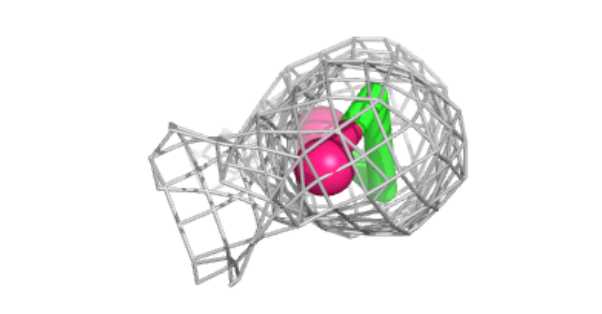
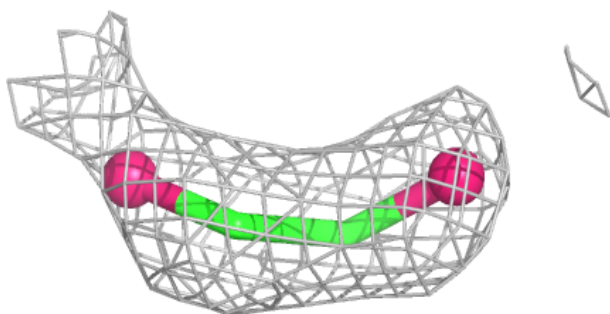
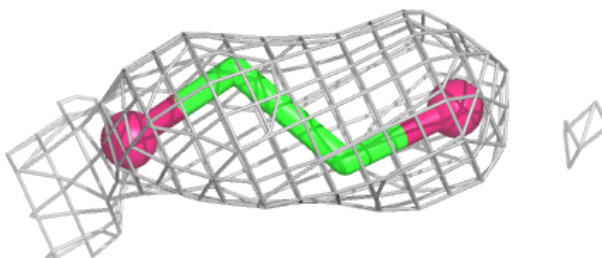


Electron density around EDO A 522:

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)

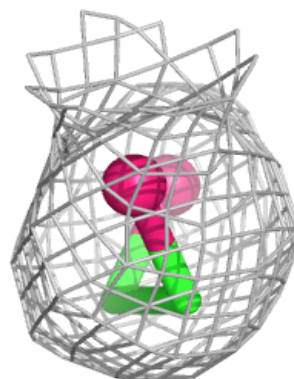
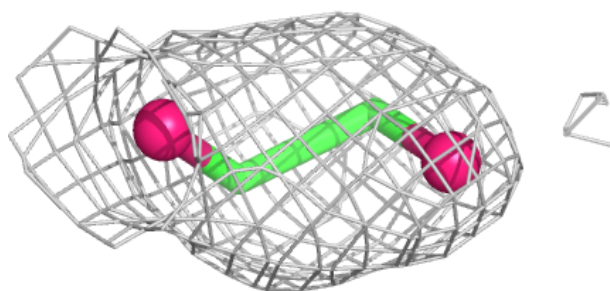
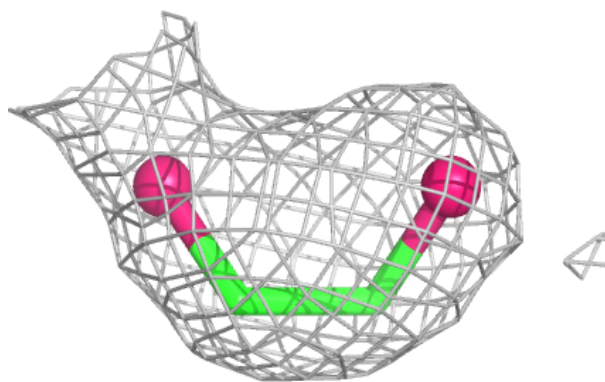
**Electron density around EDO C 517:**

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)

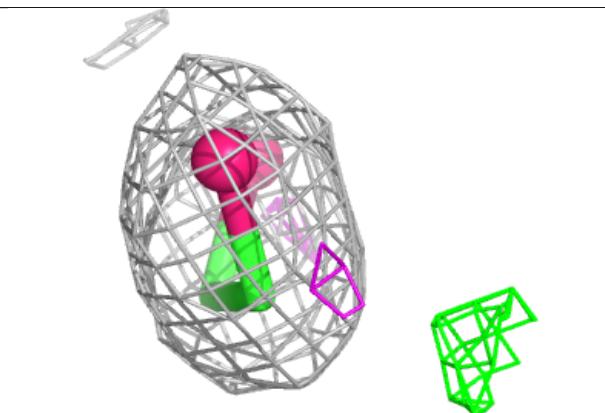
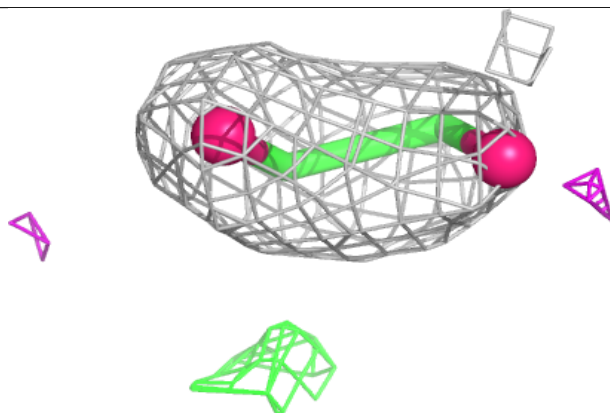
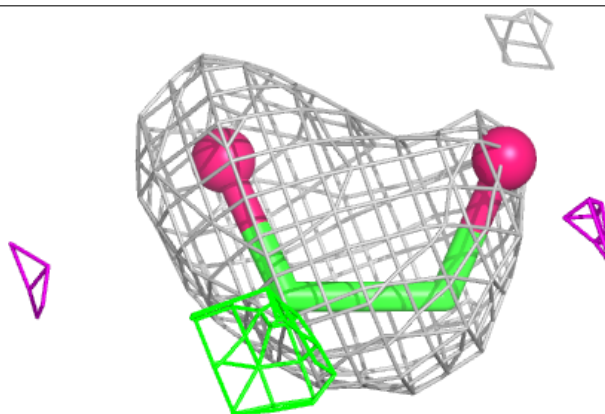


Electron density around EDO B 512:

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)

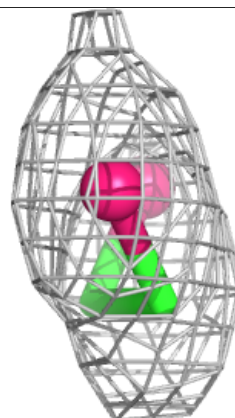
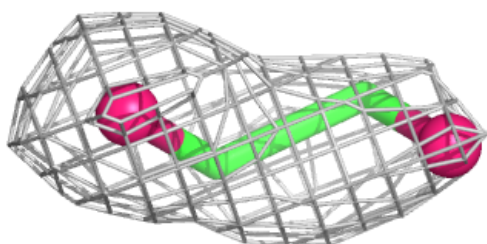
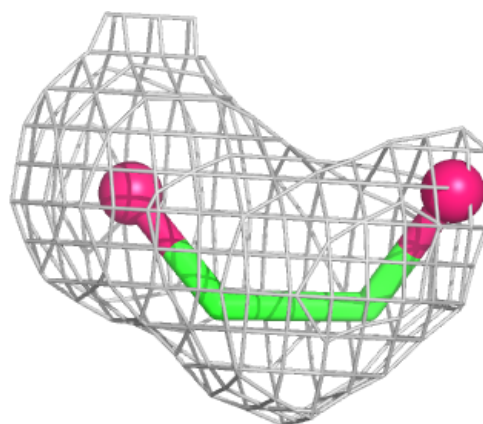
**Electron density around EDO D 512:**

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)

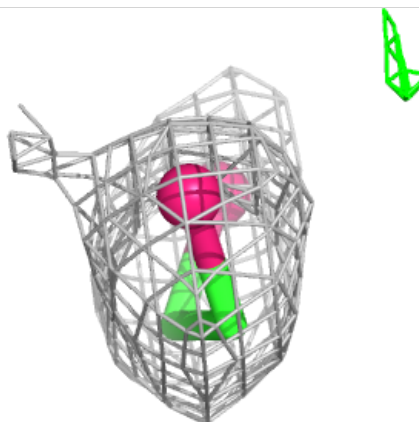
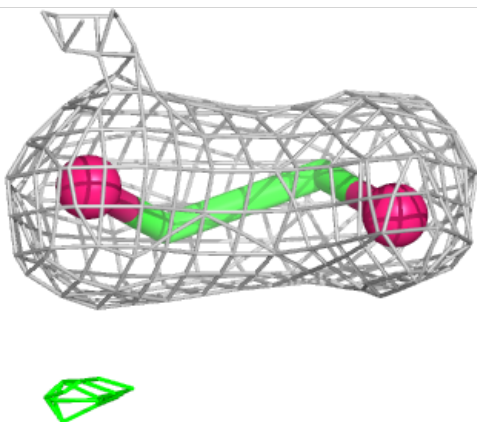
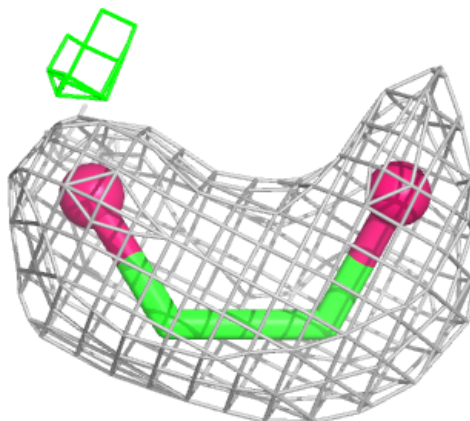


Electron density around EDO C 509:

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)

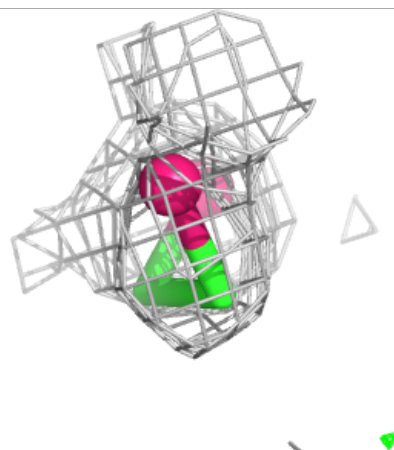
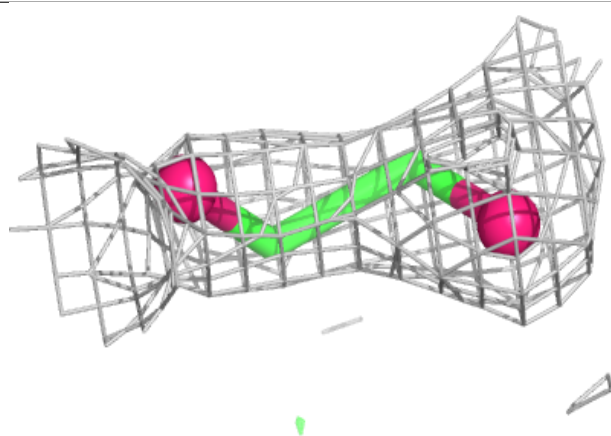
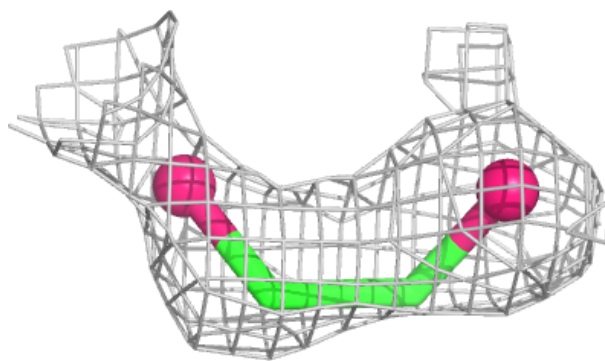
**Electron density around EDO C 510:**

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)



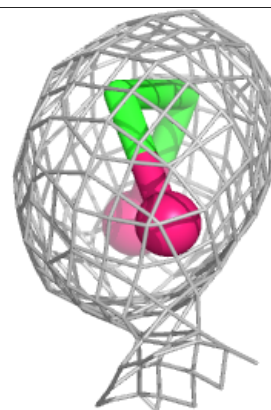
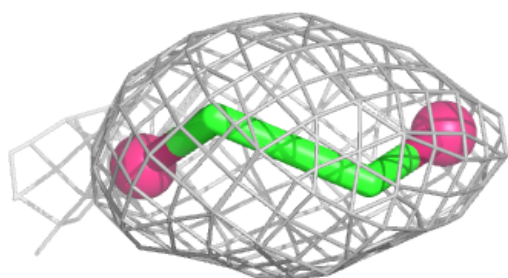
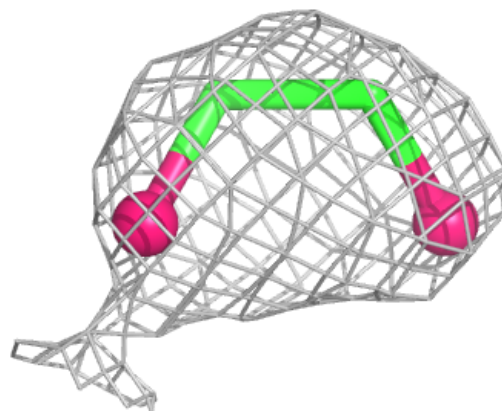
Electron density around EDO D 518:

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)



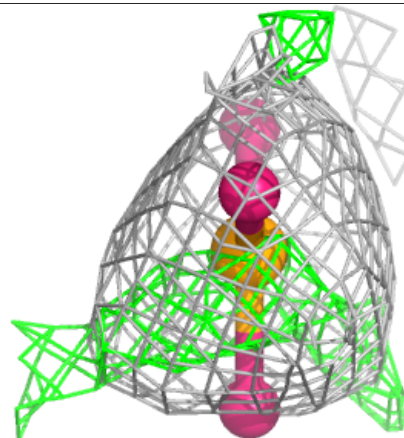
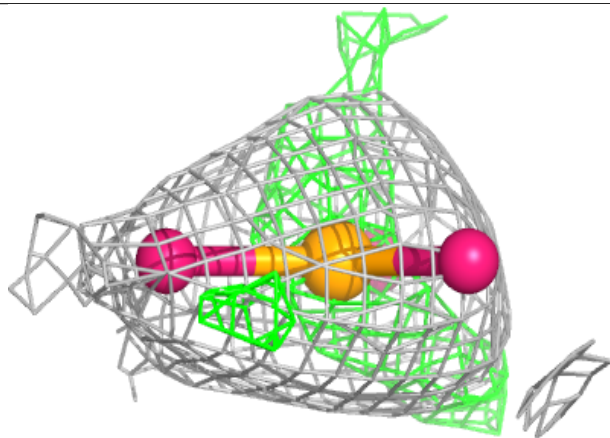
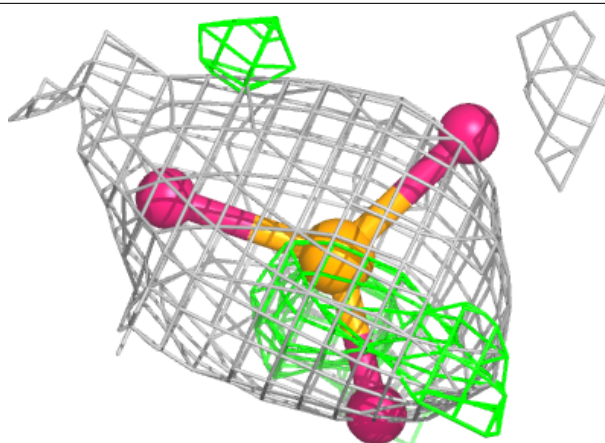
Electron density around EDO A 526:

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)



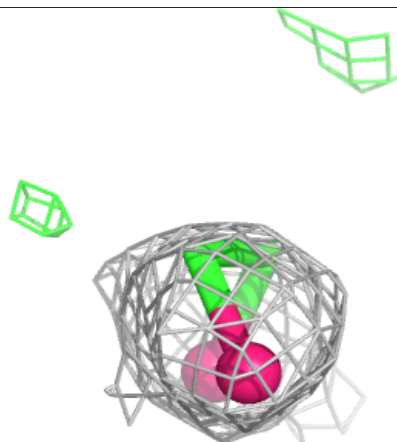
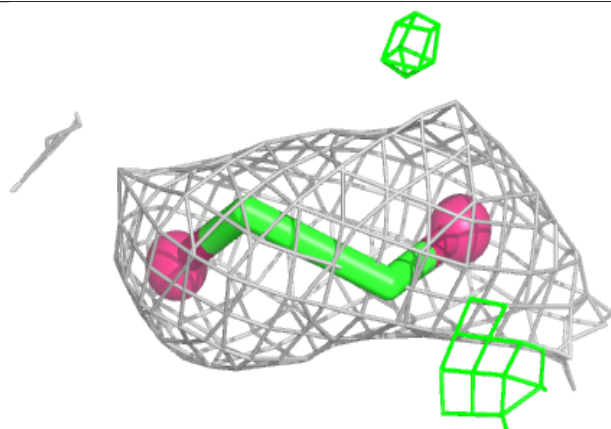
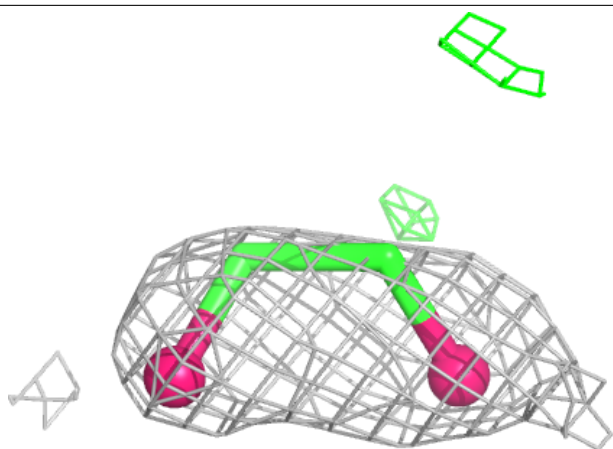
Electron density around BSY D 507:

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)



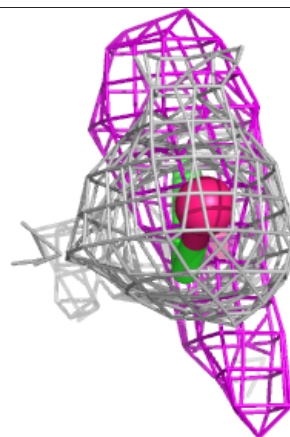
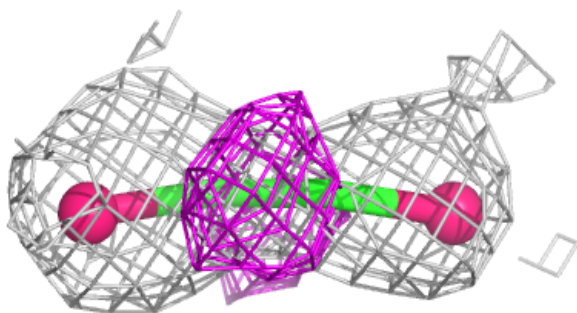
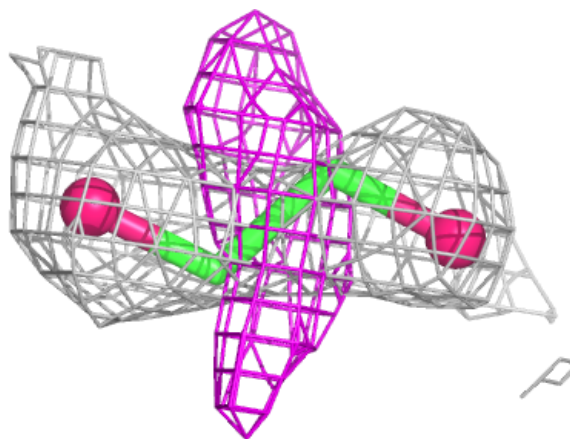
Electron density around EDO B 526:

$2mF_o - DF_c$ (at 0.7 rmsd) in gray
 $mF_o - DF_c$ (at 3 rmsd) in purple (negative)
and green (positive)



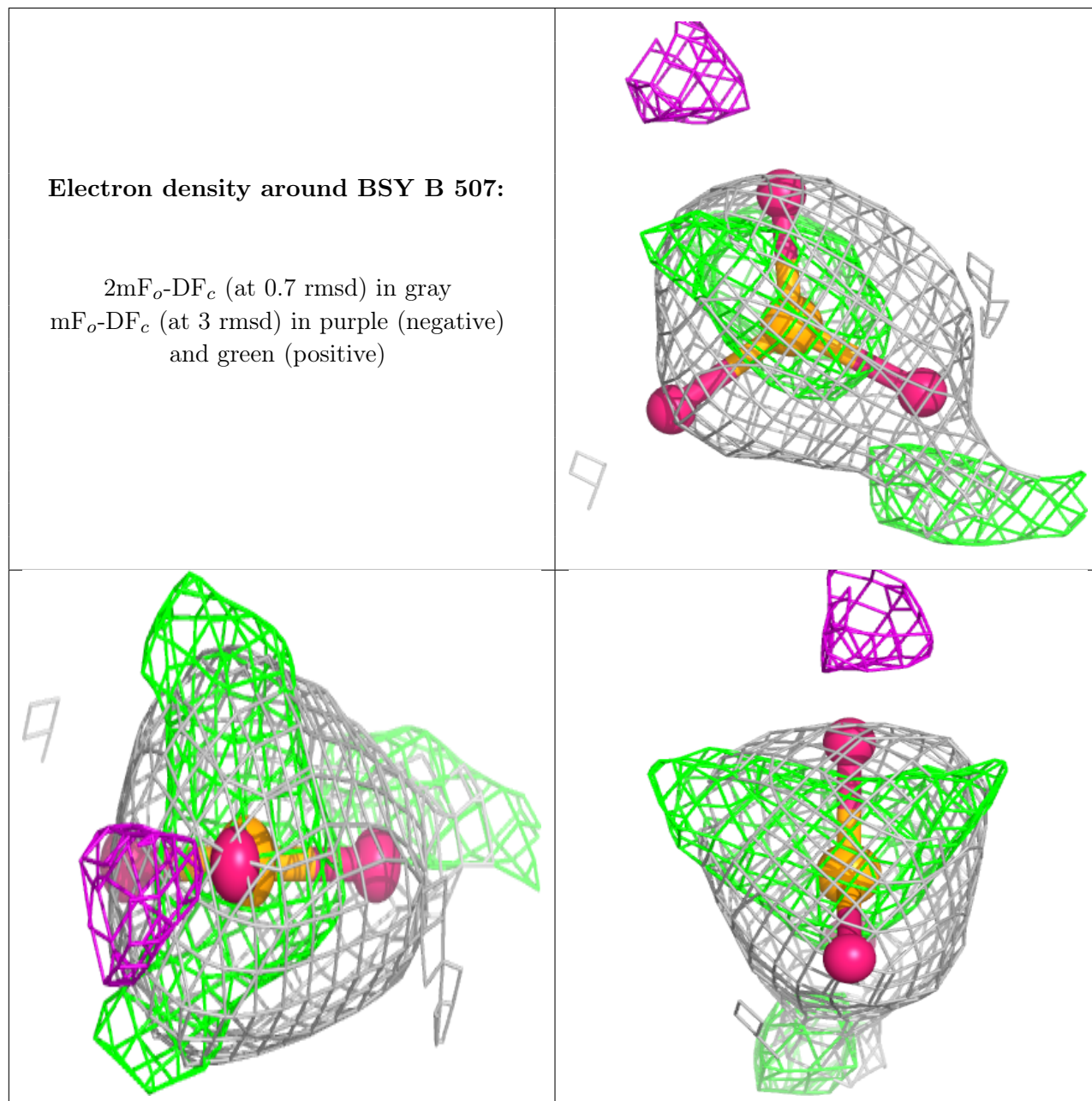
Electron density around EDO C 514:

$2mF_o - DF_c$ (at 0.7 rmsd) in gray
 $mF_o - DF_c$ (at 3 rmsd) in purple (negative)
and green (positive)



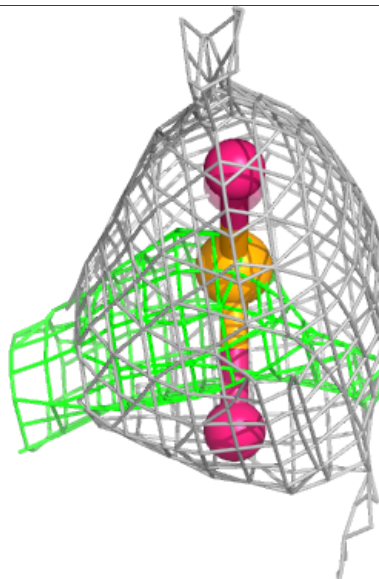
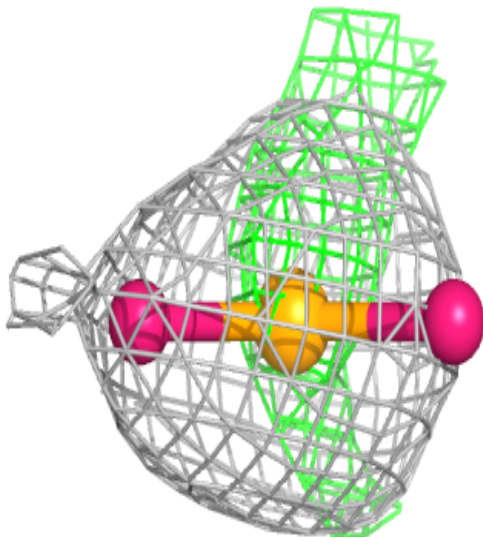
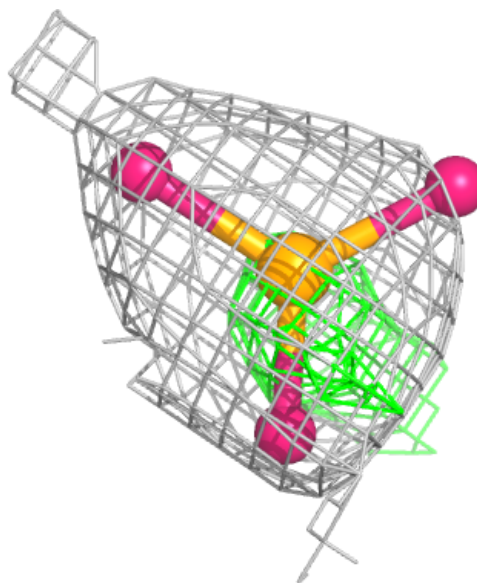
Electron density around BSY B 507:

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)



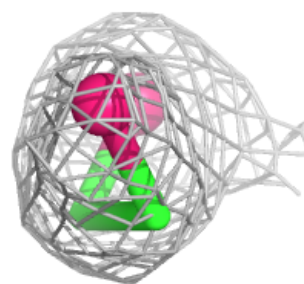
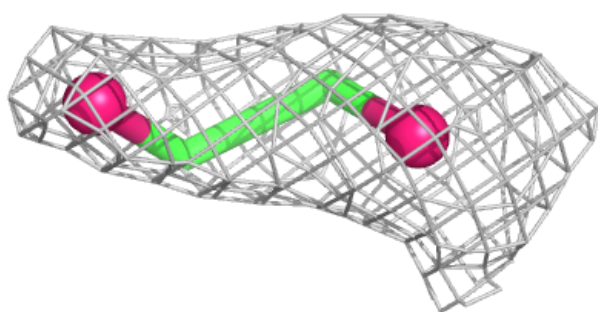
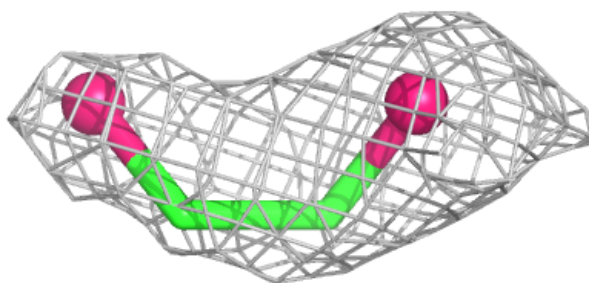
Electron density around BSY A 506:

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)

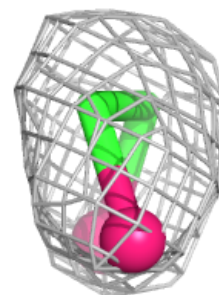
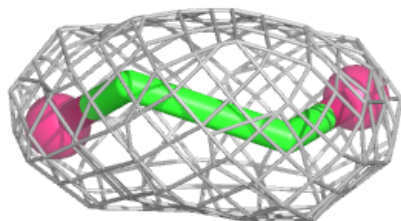
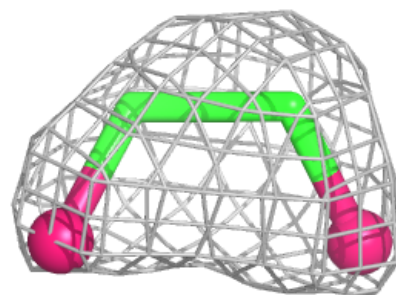


Electron density around EDO B 510:

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)

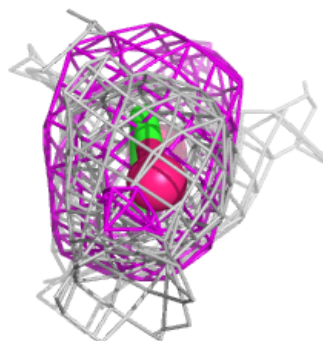
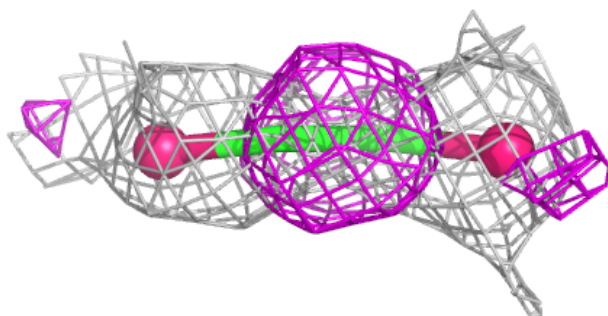
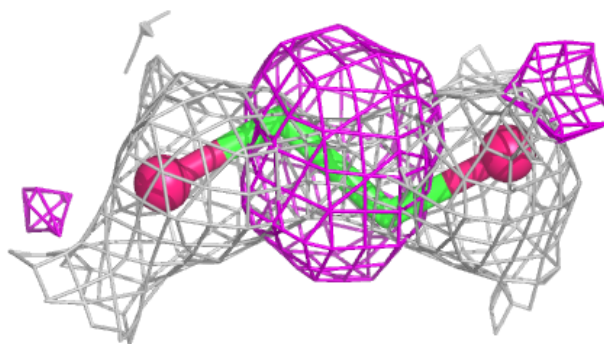
**Electron density around EDO C 520:**

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)



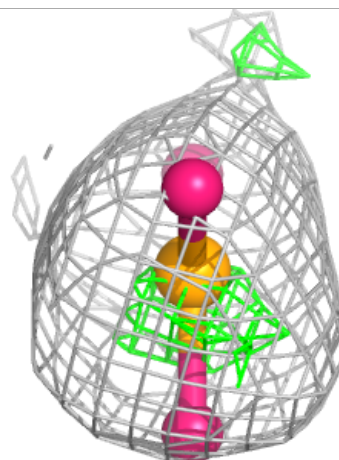
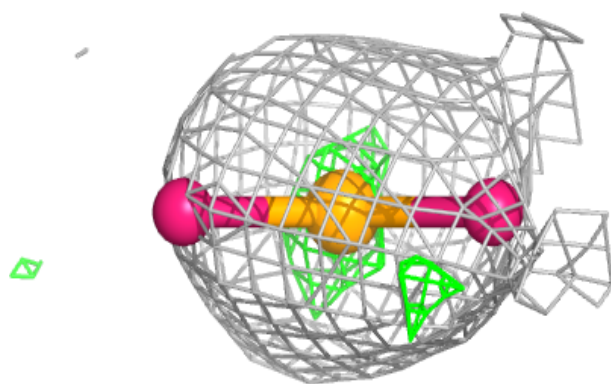
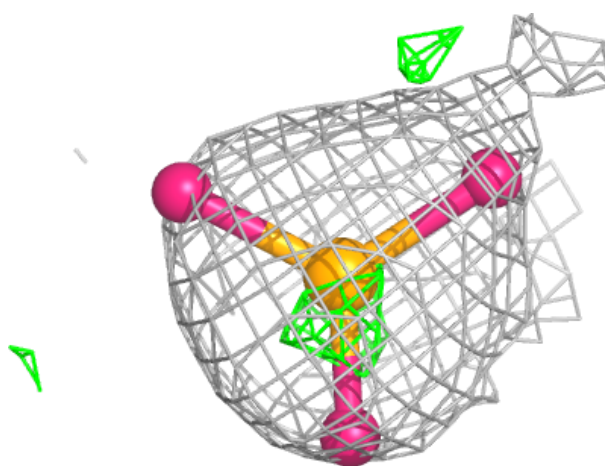
Electron density around EDO A 520:

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)



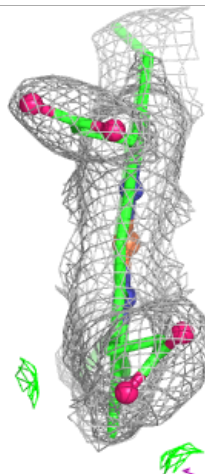
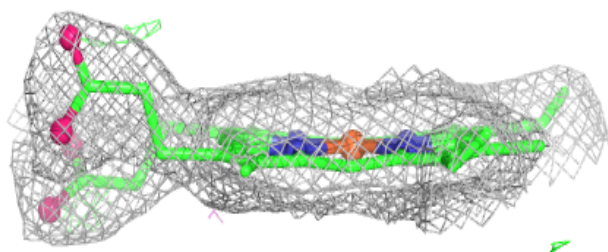
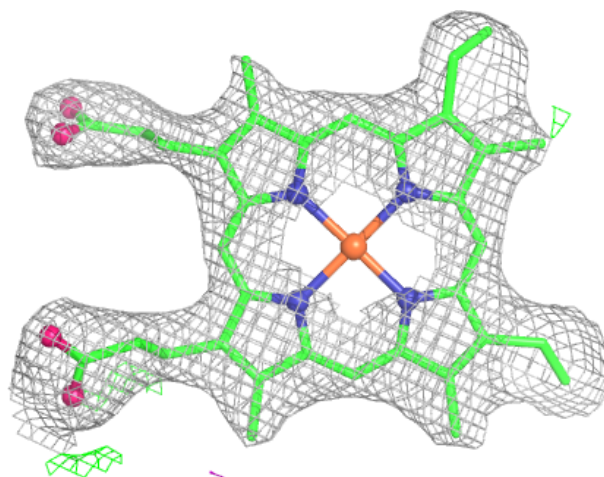
Electron density around BSY C 507:

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)



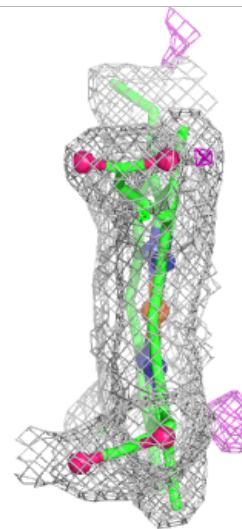
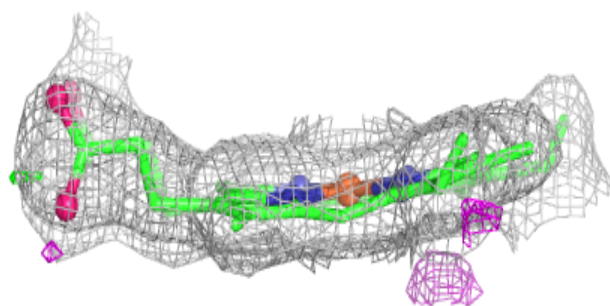
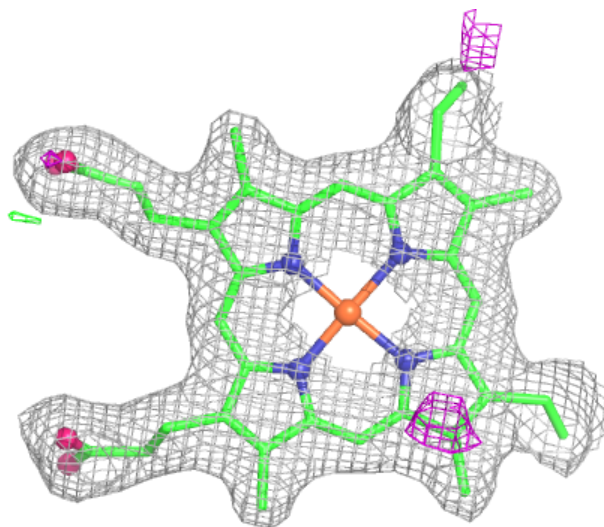
Electron density around HEC C 502:

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)



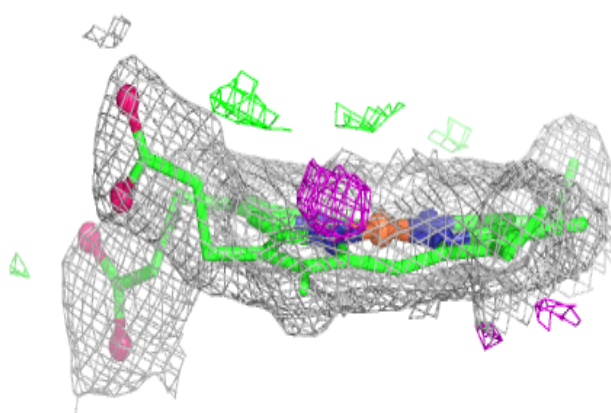
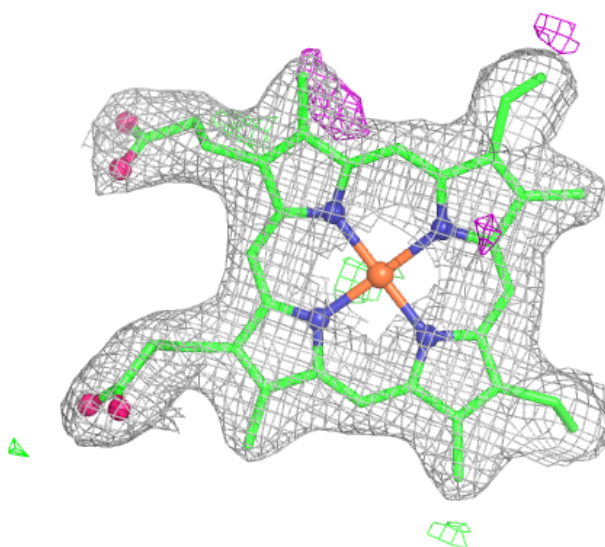
Electron density around HEC B 505:

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)



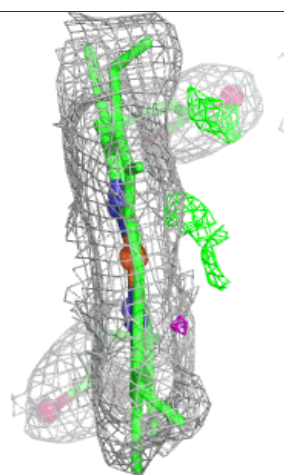
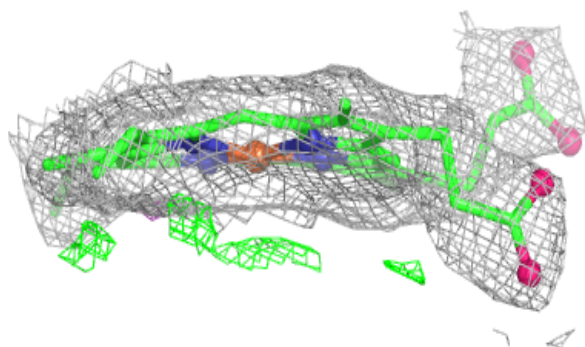
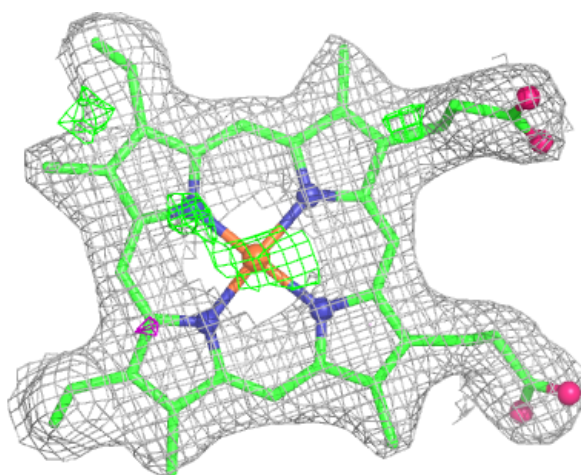
Electron density around HEC A 502:

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)



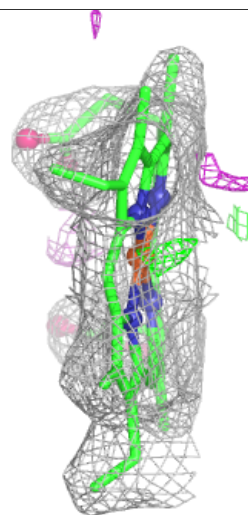
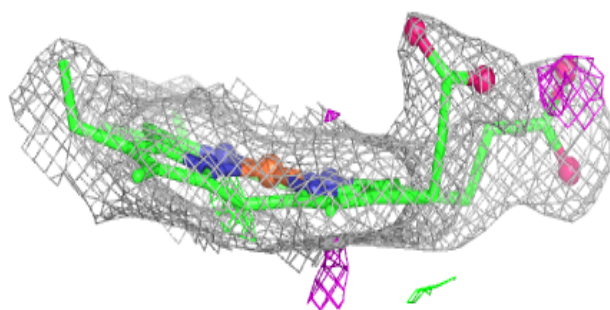
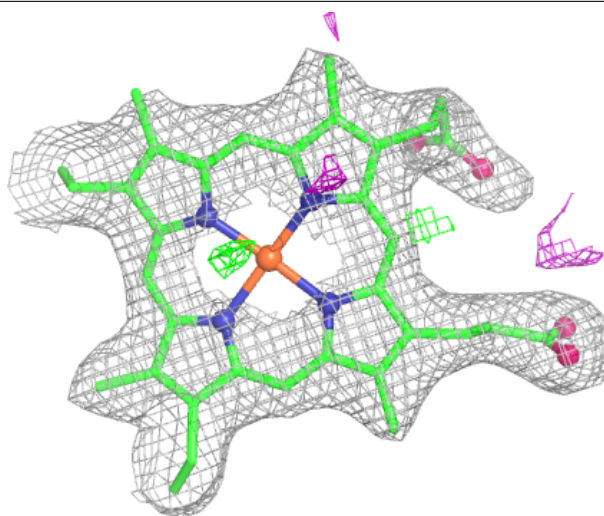
Electron density around HEC C 503:

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)



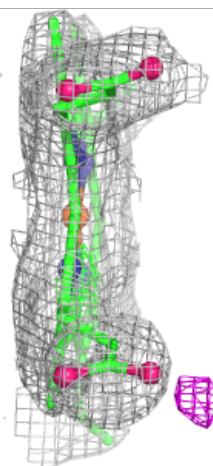
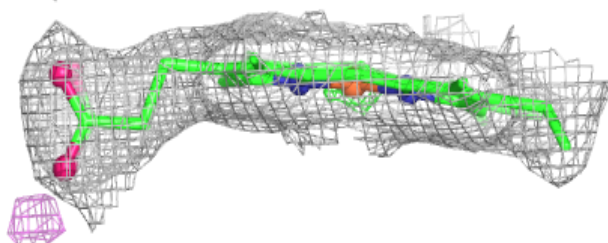
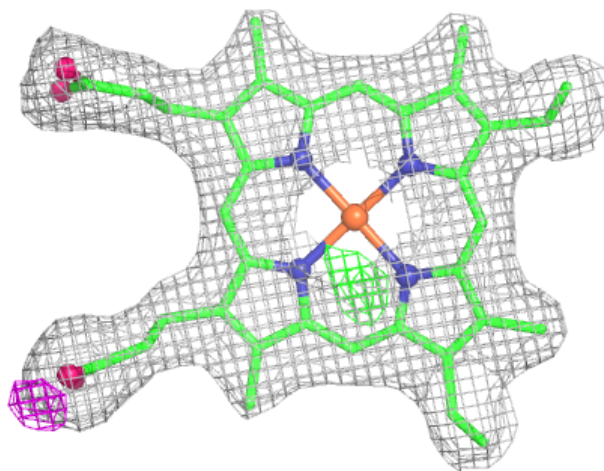
Electron density around HEC C 504:

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)



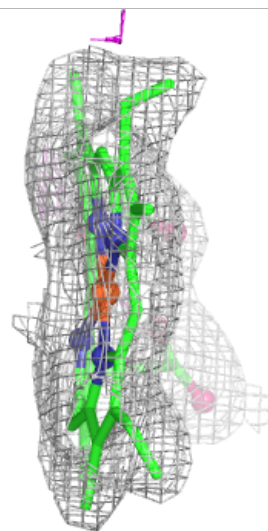
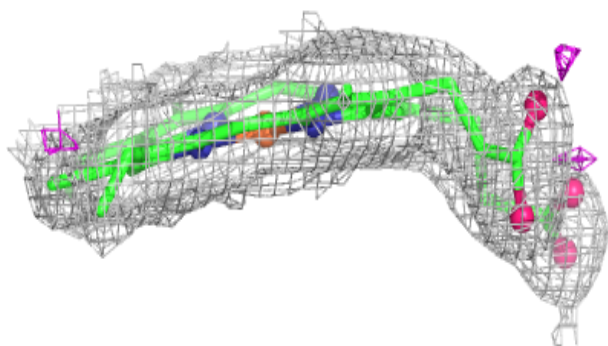
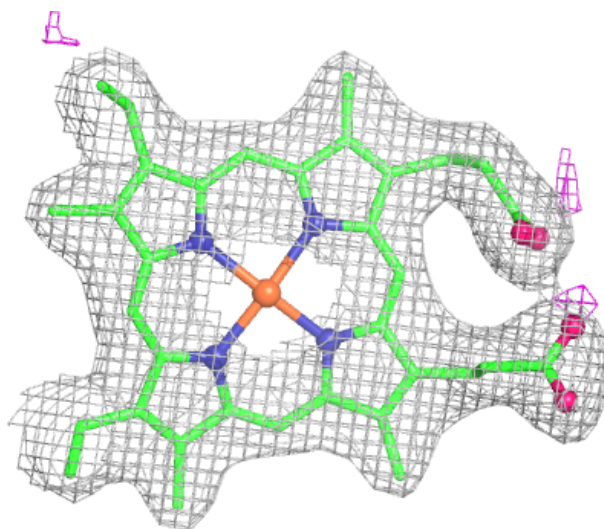
Electron density around HEC C 505:

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)



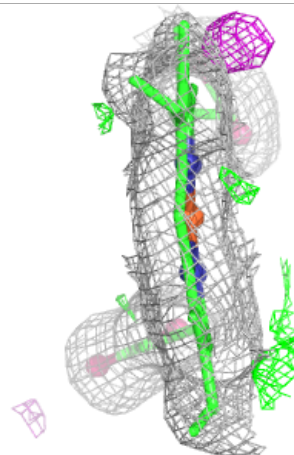
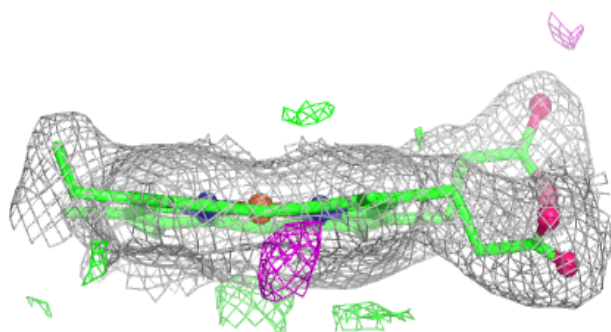
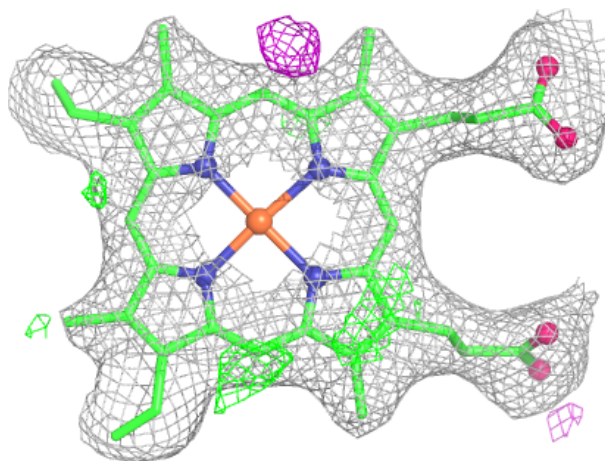
Electron density around HEC C 506:

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)



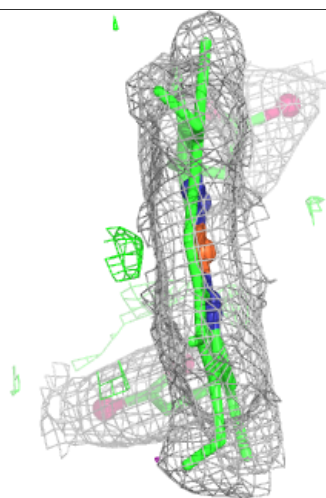
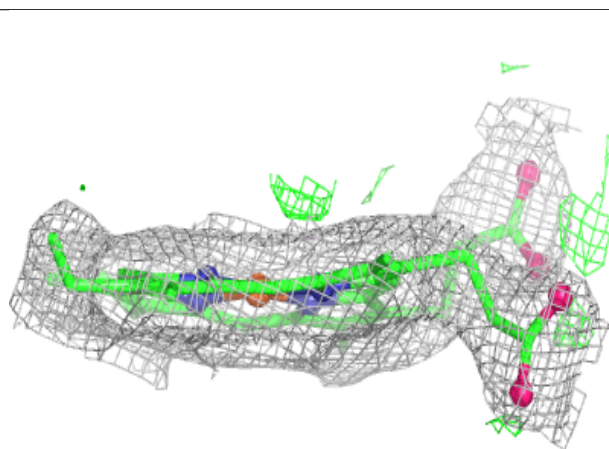
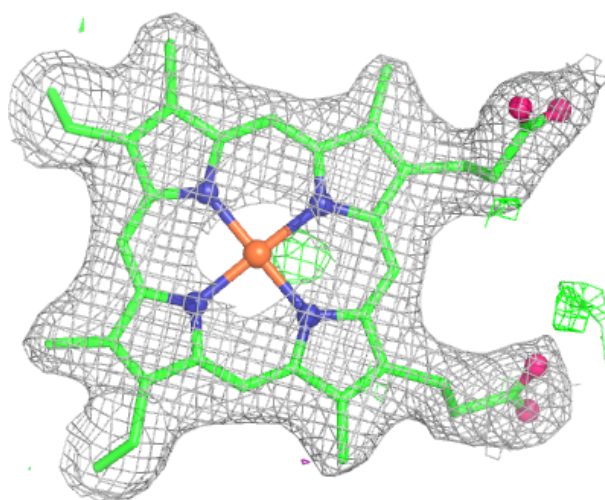
Electron density around HEC D 502:

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)



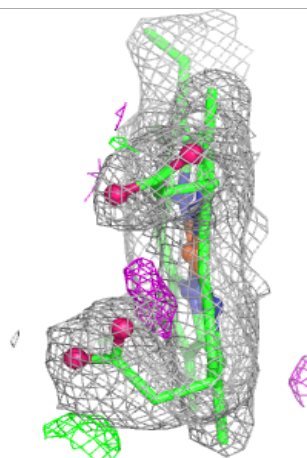
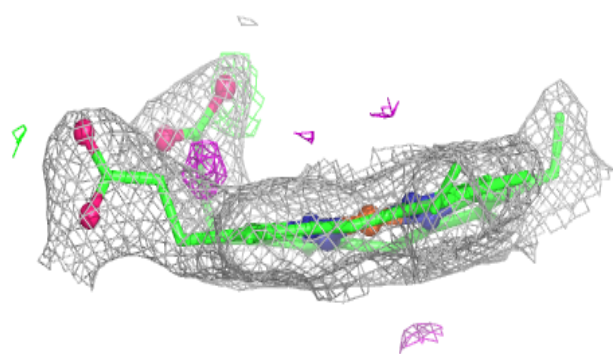
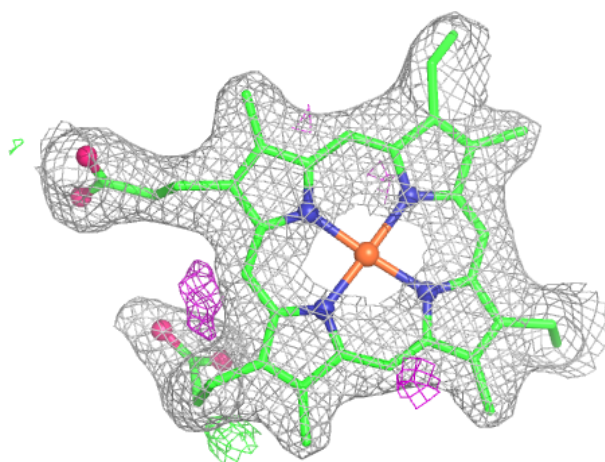
Electron density around HEC D 503:

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)



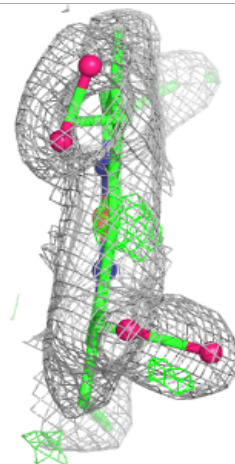
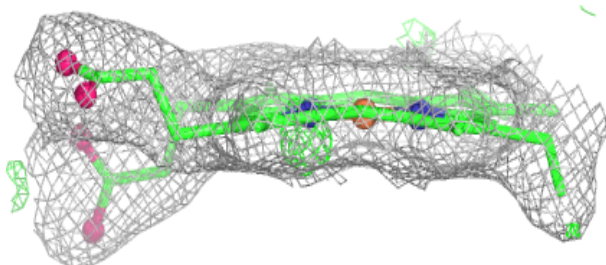
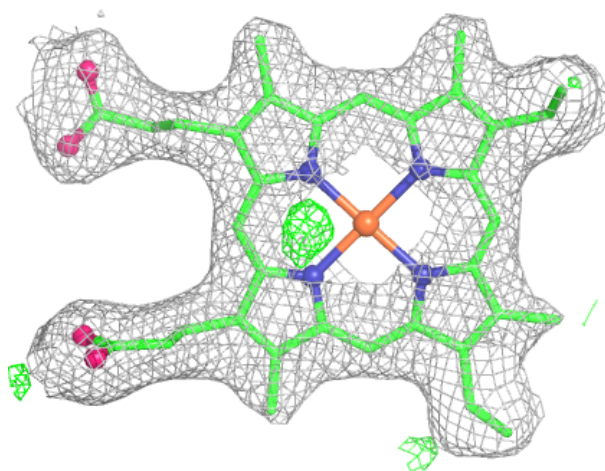
Electron density around HEC D 504:

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)



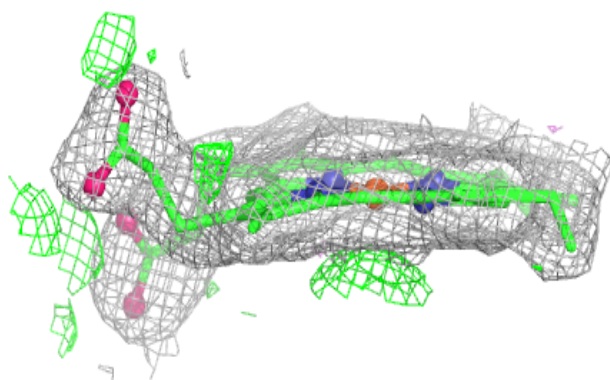
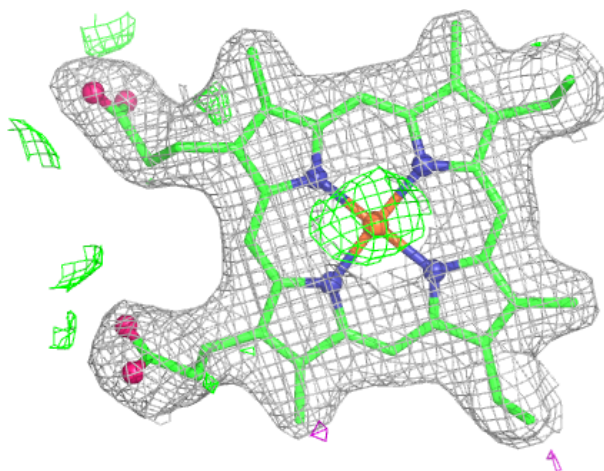
Electron density around HEC B 502:

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)



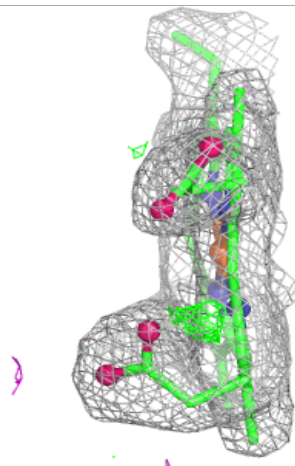
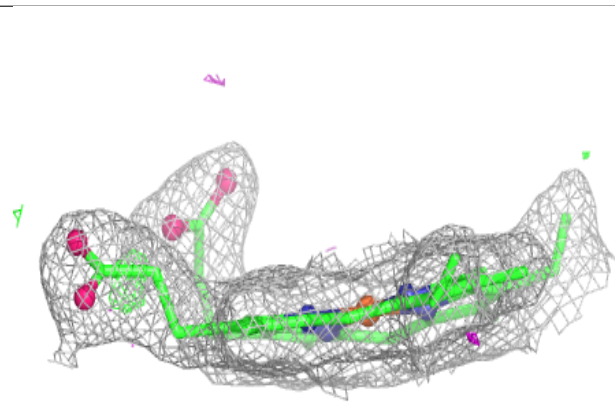
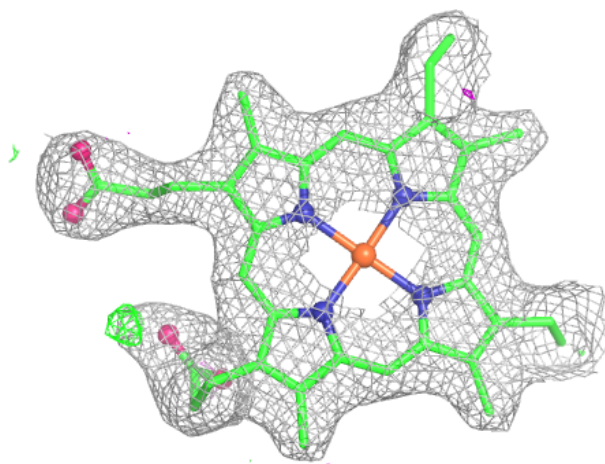
Electron density around HEC B 503:

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)



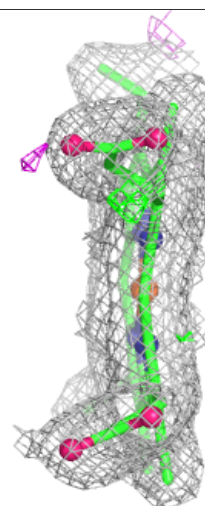
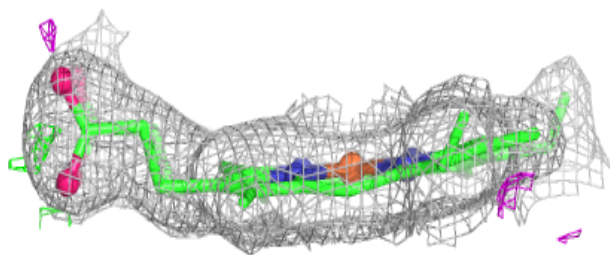
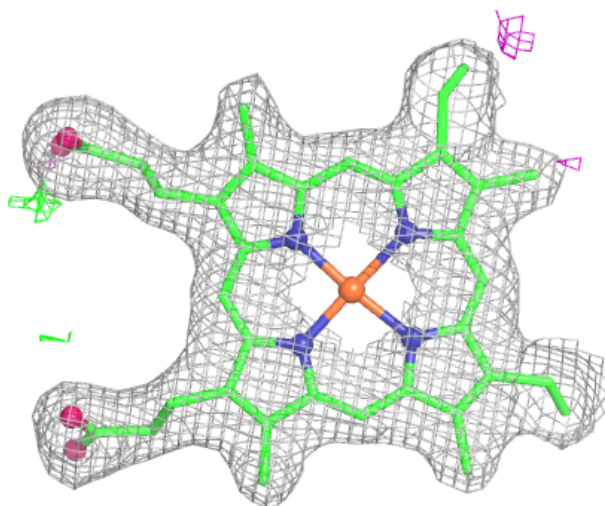
Electron density around HEC B 504:

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)



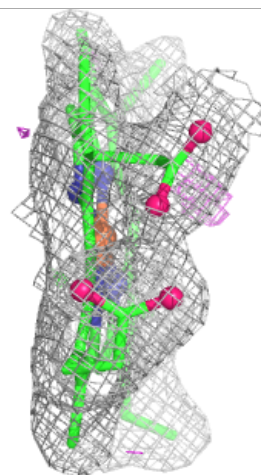
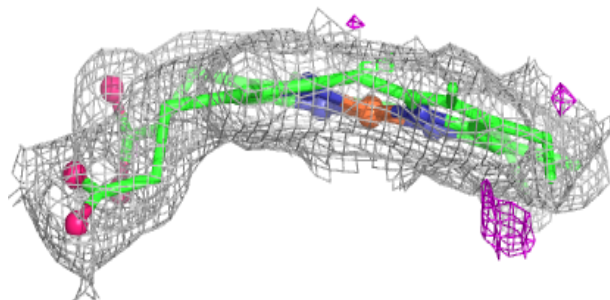
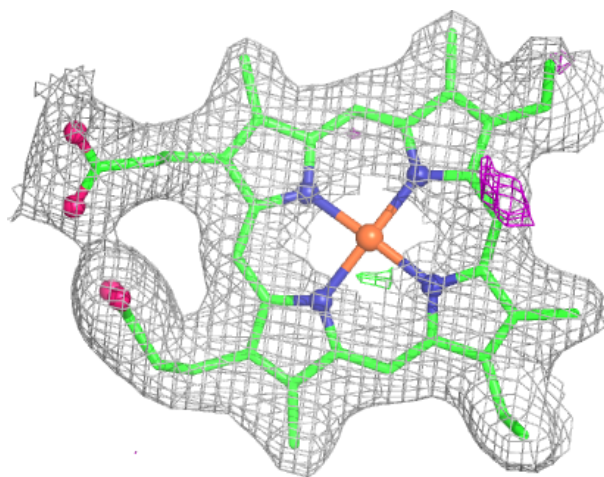
Electron density around HEC D 505:

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)



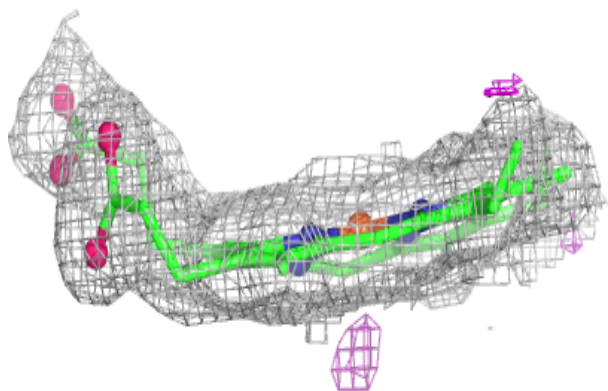
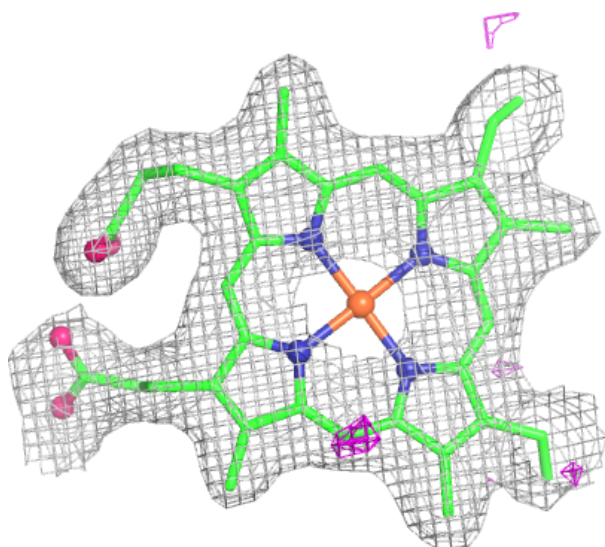
Electron density around HEC D 506:

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)



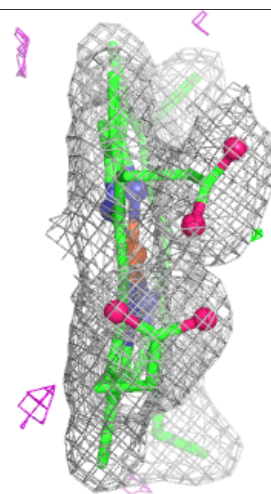
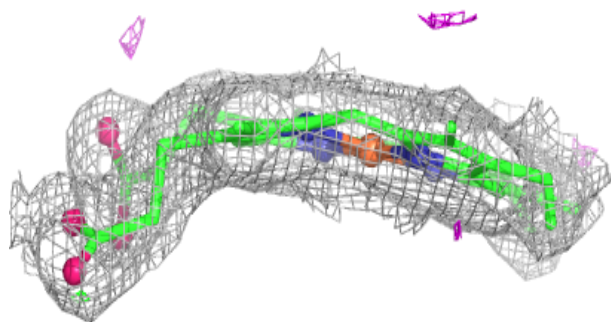
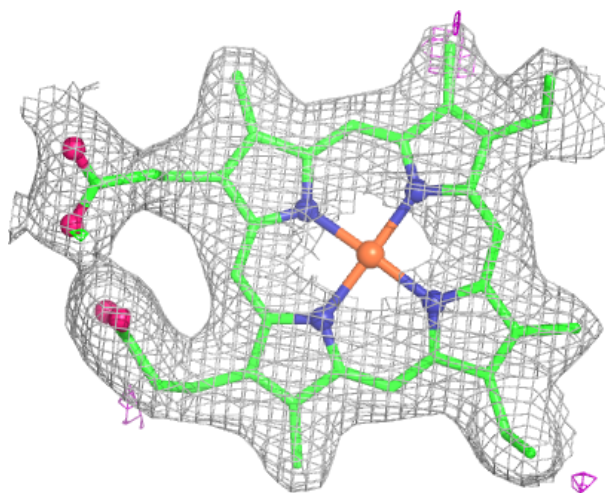
Electron density around HEC A 505:

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)



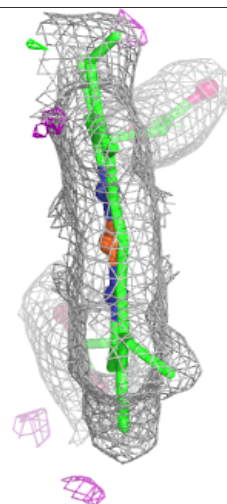
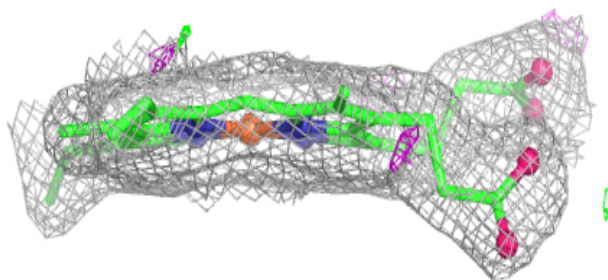
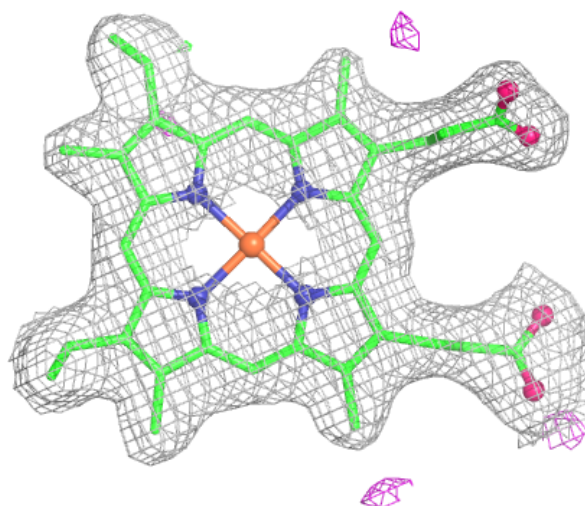
Electron density around HEC B 506:

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)



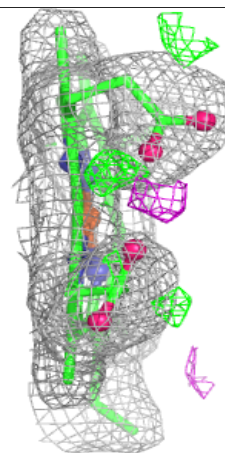
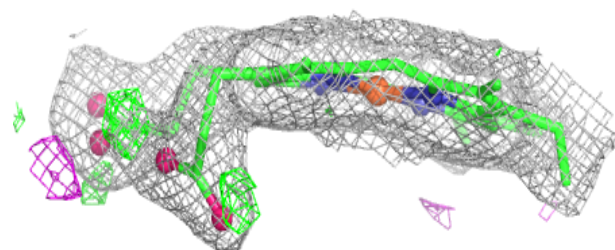
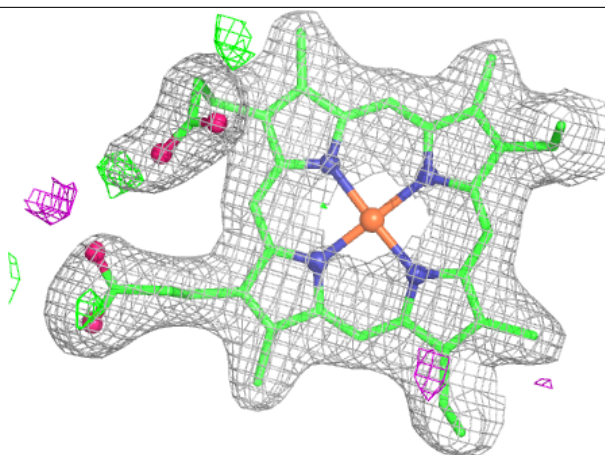
Electron density around HEC A 501:

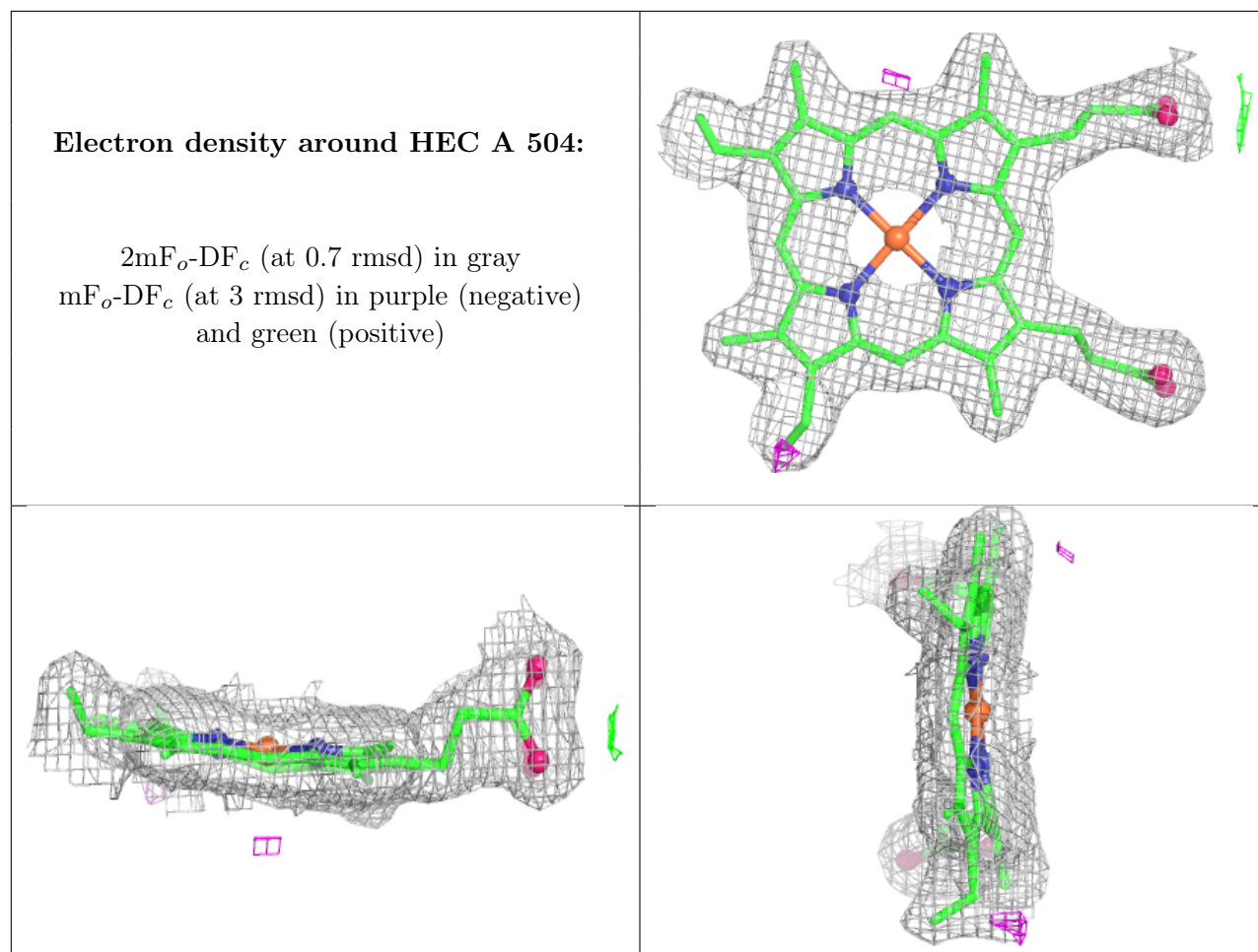
$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)



Electron density around HEC A 503:

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)





6.5 Other polymers [i](#)

There are no such residues in this entry.